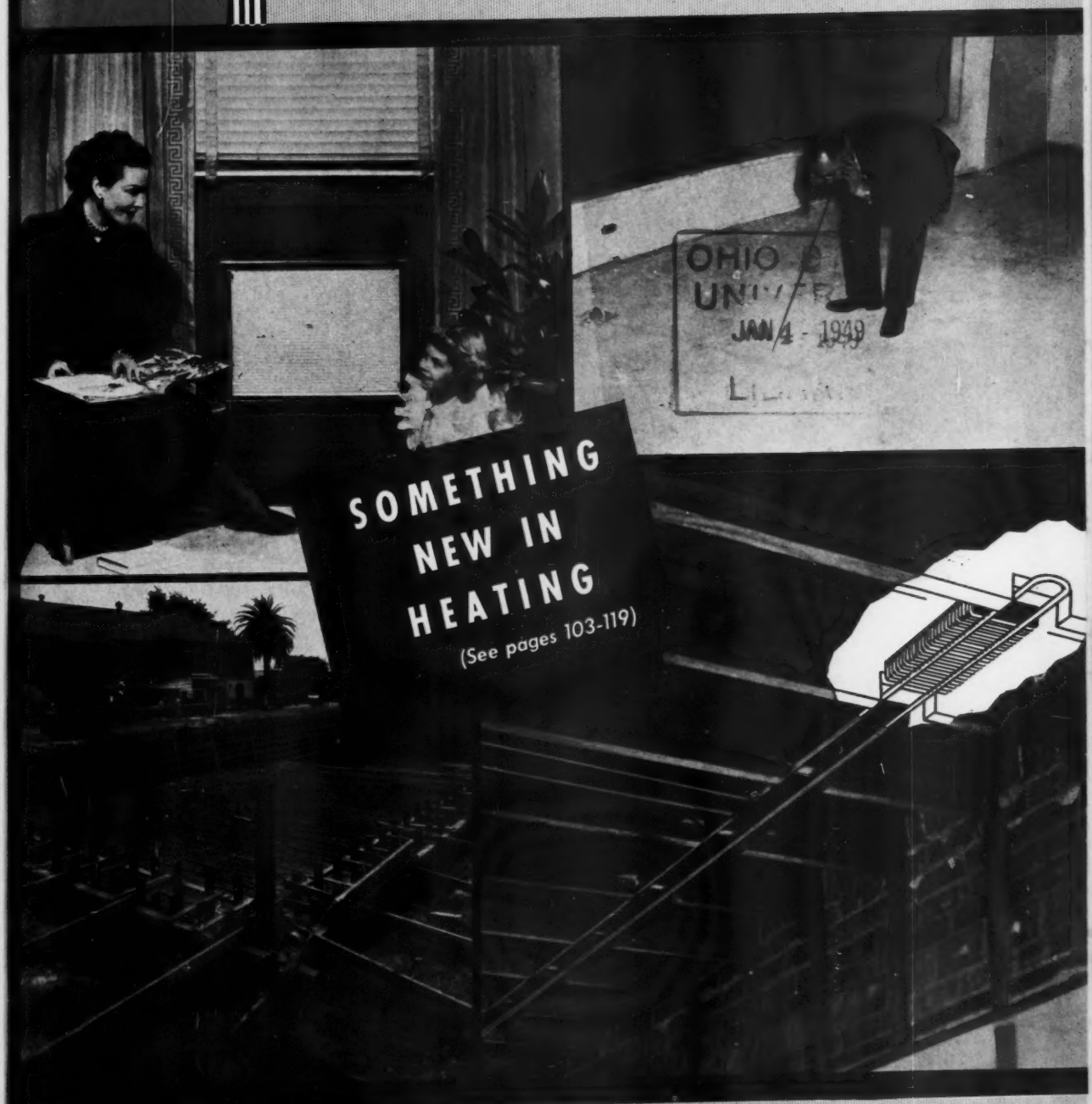
DOMESTIC ENGINEERING



OHIO
UNIV
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LI

Plumbing, Heating and Air Conditioning

HANDLES WATER ALMOST AT THE

Boiling Point

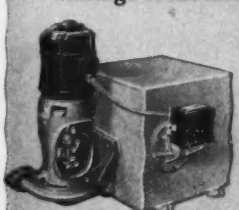
Water and Air being discharged to Air Separating Tank

Air, Vapor and Condensate from Accumulator Tank

It's the higher efficiency of the exclusive Jet-Type Vacuum Producer, featured in Hoffman Economy Vacuum Pumps, that keeps steam lines cleared for action . . . *and your customers happy.*

This device produces high vacuums and maintains full rated water capacity even at excessively high temperatures. Loss of efficiency because of wear does not occur since close clearances are not required. The Jets are scientifically designed to take full advantage of the fact that water in motion will entrain or pick up air, vapor and other water.

Other design features include . . . all cast iron and bronze construction . . . stainless steel shaft . . . noiseless . . . easy accessibility to all parts.



Hoffman-Economy Type "E" Condensation Pump with vertical pump and motor assembly.

HOFFMAN VACUUM and CONDENSATION PUMPS
are now available in a wide range of types and capacities due to increased production.

HOFFMAN
ECONOMY PUMPS

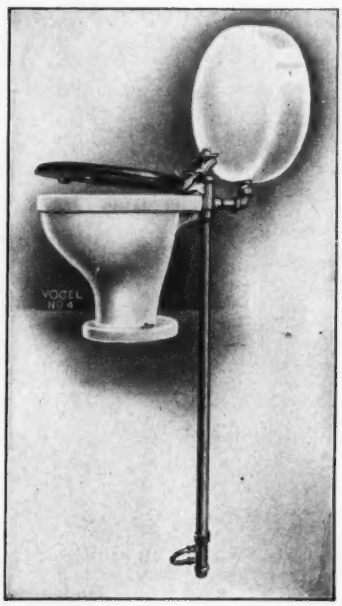
HOFFMAN SPECIALTY COMPANY
Dept. RX-1 1001 York St. • Indianapolis 7, Ind.

Famous for Hoffman Valves, Traps, Vacuum and Condensation Pumps, Forced Hot Water Heating Systems.

VOGEL FROST-PROOF PRODUCTS

Mean Dependable Service...ALWAYS

Neither frost nor snow nor hard continuous use affect the efficient and economical operation of Vogel Frost-Proof Closets and Hydrants.



VOGEL No. 4 FROST-PROOF CLOSET

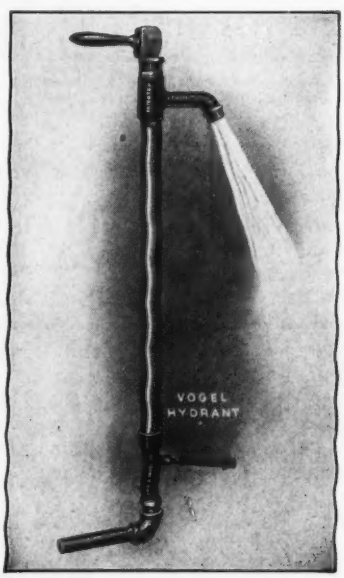
A rugged, dependable frost-proof closet that will never freeze when properly installed. A great convenience installed in the yard or on a rear porch.

BOWL . . . *Vitreous China, Top Supply. Just as durable as iron and easier to keep clean. Bowl is so constructed that it will never freeze no matter how low the temperature may go.*

SEAT . . . *Hardwood with Galvanized Malleable iron hinge.*

VALVE . . . *Heavy brass flush and supply valves assembled with Galvanized Pipe Casing.*

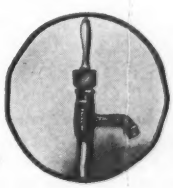
TANK . . . *Twelve Gauge Steel, Galvanized—painted white enamel finish.*



VOGEL FROST-PROOF HYDRANT

For farms, dairies, garages, service stations, industrial plants and many other types of installation. A sure dependable source of running water at all times of the year. Will *never* freeze when properly installed.

Users like the Vogel Hydrant because it never fools them. When they see the handle in an upright position they know the water is surely shut off. Any Hydrant that does not positively close, will waste water in Summer, and is sure to FREEZE in Winter.



JOSEPH A. VOGEL COMPANY • WILMINGTON 99, DEL.

Over a Million Vogel Frost-Proof Closets and Hydrants have been sold.

VOGEL PATENTED PRODUCTS

824952

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January, 1949

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Vol. 173, No. 1; Whole No. 2179

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THERE'S PROFIT FOR YOU IN

"Before" and "After" pictures show vast improvement in Hotel Van Orman baths.

Recently Van Orman Hotels purchased the Hotel Anthony in Fort Wayne, Indiana, changed the name to Hotel Van Orman, and spent more than a half million dollars in modernization. Among the most striking improvements are the modernized bathrooms featuring Weisway Cabinet Showers. F. Harold Van Orman, president, writes:

"Your Weisway Cabinet Showers in our hotel have elicited many favorable and worthwhile comments and compliments from our guests and patrons, and I am pleased beyond measure to add my words of praise to your already long list of satisfied customers.

"We are happy to recommend your splendid Cabinet Showers most highly to all hotel users, who are contemplating a similar installation."

Modernizing WITH Weisways

The QUALITY Cabinet Showers

The striking improvement pictured here points up the profit possibilities for you with Weisway Cabinet Showers. For modernizing and new building — in hotels, schools, institutions, industrial plants as well as in homes — these quality cabinet showers meet a broad and insistent need.

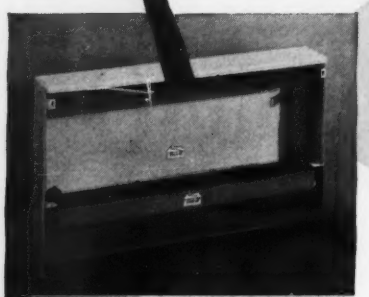
Weisways are engineered and precision fabricated for quick, easy installation. They are built of service-tested materials. The exclusive Foot-grip, No-Slip floor of vitreous porcelain enamel is safe, wet or dry — easy to keep clean and sanitary. Their staunch construction and fine appearance reflect the quality which assures leakproof service and satisfaction through the years.

It isn't the price but *it's the satisfaction and years of service that actually determine the cost of Cabinet Showers to your customers.* When you install Weisway *quality* Cabinet Showers you serve your customer best, protect your profit and build good will that fosters the growth of your business. Weisways are available exclusively through established plumbing channels. Henry Weis Mfg. Co., Inc., 104 Weisway Building, Elkhart, Indiana.

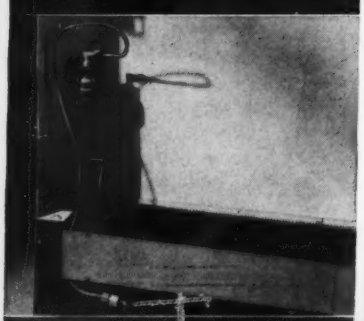
Weisway
CABINET SHOWERS

• • • **Weisway is the Wise Way** • • •

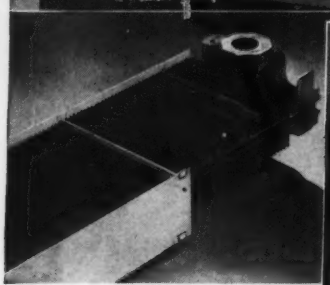
Presenting a new line of Fedders Type F Convector-Radiators



Showing location of heating element.

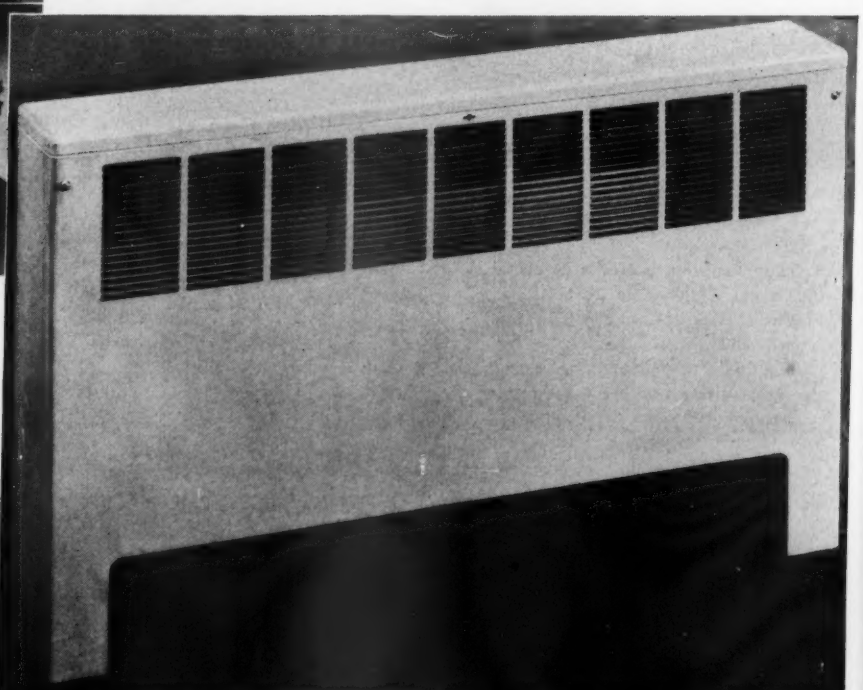


Note convenient piping, adjustment for pitch, and air vent.



Cutaway view showing arrangement of fins, tubes and headers.

Men who design, specify, sell, install and service household and commercial heating systems will welcome Fedders Type F Convector-Radiators. They are built in a complete range of standardized sizes and capacities for free-standing and semi-recessed installations. Heating element design is a result of over 50 years of Fedders heat transfer experience and skill. They combine thermal and aerodynamic efficiency with consequent comfort and fuel economy. Write for catalog and price list. Representatives in principal cities, see your classified telephone directory.



HEAT TRANSFER SPECIALISTS SINCE 1896

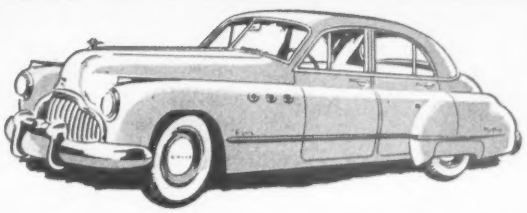
FEDDERS-QUIGAN CORPORATION • BUFFALO 7, N. Y.

ANNOUNCING THE

GOLD MINE OF '49

"COURT OF FLAME"
AUTOMATIC GAS WATER HEATER
SALES CONTEST

GRAND PRIZE
A BUICK SUPER SEDAN
PLUS



A beautiful Buick Super Sedan goes to the top Water Heater Dealer Salesman at the end of the "Court of Flame" Automatic Gas Water Heater Sales Contest. Equipped with Dynaflow Drive, radio and antenna, heater, windshield washer, back-up lights and a full tank of gasoline.

$45,600 IN U. S. SAVINGS BONDS

Every Water Heater Dealer Salesman has a chance to win this beautiful Buick. Every salesman also has 50 chances to win U.S. Savings Bonds in the big "Court of Flame" Automatic Gas Water Heater Sales Contest. It's the "Gold Mine of '49." Get in now—for bigger sales—big prizes.

This Contest Conducted by the Water Heater Division of the
GAS APPLIANCE MANUFACTURERS ASSOCIATION, 60 EAST 42nd STREET, NEW YORK 17, N. Y.

AND SPONSORED BY

Allcraft Manufacturing Company, Inc.
American Gas Machine Company
Bastian-Morley Company, Incorporated
Bryant Heater Company
Clayton and Lambert Manufacturing Co.
The Cleveland Heater Company
Coleman Company, Incorporated
Continental Water Heater Company, Limited
Day and Night Manufacturing Company
Duo-Therm Division, Motor Wheel Corp.
General Water Heater Corporation
Handley Brown Heater Company
M. M. Hedges Manufacturing Company
The Hotstream Heater Company
Hoyt Heater Company
Hoyt Heater Company of No. California
Lawson Manufacturing Company
Lovekin Water Heater Company
Mission Appliance Corporation
Mustee Heater Company
Pioneer Water Heater Company
The Pittsburg Water Heater Corporation
Republic Heater Corporation
Rheem Manufacturing Company
Ruud Manufacturing Company
Security Manufacturing Company
Servel, Incorporated
A. O. Smith Corporation
Southern Heater Corporation
John Wood Manufacturing Company, Inc.

Contest starts
JANUARY 1ST

MAIL COUPON TODAY FOR FULL INFORMATION

To: "Court of Flame" Automatic Gas Water Heater
Sales Contest Headquarters
c/o Gas Appliance Manufacturers Association
60 East 42nd Street, New York 17, N. Y.

PLEASE SEND FULL DETAILS.

NAME_____

ADDRESS_____

CITY & STATE_____

Here's the Ticket
AMERICAN-Standard
first in heating . . . first in plumbing
TRADE ADVERTISING
NATIONAL ADVERTISING
MAT SERVICE
DEALER IDENTIFICATION
DIRECT MAIL
SALESROOM DISPLAY
POINT-OF-SALE LITERATURE
ROOM DESIGN IDEAS
CATALOG SERVICE
TIME PAYMENTS
– to better
AMERICAN-Standard
HEATING · PLUMBING
Serving home and industry
AMERICAN-STANDARD · AMERICAN BLOWER · CHURCH

business in '49!

■ The kind of advertising and merchandising support American-Standard gives you is just the ticket to bring prospective buyers into your store.

And when they see your attractive displays of American-Standard Heating Equipment and Plumbing Fixtures, you'll get many new customers . . . for no line enjoys greater public acceptance.

Right now is the time to plan for the months ahead. Ask your Wholesale Distributor for details of the wide variety of quality products made by American-Standard. He will also give you full particulars about the powerful advertising and merchandising program which American-Standard has planned to simplify your own selling job . . . and help you build a bigger, better business.

Yes, now is the time to get aboard the American-Standard streamlined salesmaker. With this ticket . . . and this line, you'll have what it takes to go places in '49. **American Radiator & Standard Sanitary Corporation,** P. O. Box 1226, Pittsburgh 30, Pennsylvania.

AMERICAN-Standard
First in heating . . . first in plumbing

SEATS · DETROIT LUBRICATOR · KEWANEE BOILER · ROSS HEATER · TONAWANDA IRON

"X"
Heating System
Service Products
"X" FLUSH & RUSTOFF
"X" FLUSH stops foaming and surging, and breaks down rust, scale and sludge which are readily drained from boiler. Scientific "X" RUST-OFF retards new formation of rust and scale.
X FLUSH
X RUSTOFF
"X" PIPECUT OIL
A special, fine cutting oil blend for work on all types of fittings. Flows well over threads. Keeps parts constantly covered and cool.
X PIPECUT OIL
"X" PIPEJOIN
For cold, hot water, steam and artificial gas lines. Fully guaranteed.
X PIPEJOIN SEALS

"X" BOILER LIQUID

. . . and not alone in the sensational way it goes to work on leaks, but also in the profits and satisfaction that *pour in* when you *pour* "X" *out* of that famous can into a leaky boiler.

"X" BOILER LIQUID has been the lifesaver of failing heating systems for nearly 30 years . . . it flows to the leak in low or high pressure boilers with the circulation of the water and actually mends from the OUTSIDE! . . . not just a quick plug or temporary seal, but a sound, rugged repair that puts a boiler back into lasting, steady service. In pipes and fittings, "X" also seals sand holes, poor threads, split nipples and cracked castings. "X" is a colloid and positively contains no harmful solids—no meal, shavings, soap or water glass to damage circulation. Have "X" ready this Winter.

LABORATORIES, INC., 25 W. 45 ST., NEW YORK

THRUSH

Ajustaflo

SINGLE MAIN SYSTEM OF

FORCED HOT WATER HEAT

Now... YOU CAN INSTALL AJUSTAFLO SYSTEMS WITH COPPER OR STEEL PIPE

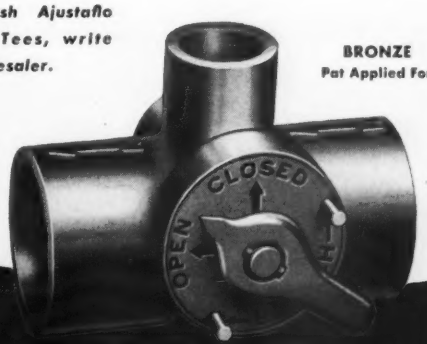
THRUSH Adjustable Supply Tees for perfectly balanced one-pipe heating, are now available in bronze for solder connections as well as cast iron. You may offer the many advantages of the Ajustaflo System with either copper or steel pipe installations. Heating efficiency is improved because just the right amount of water may be diverted to each radiator. Convenient exterior lever adjustment determines the amount of hot water passing from the main through each radiator. This assures uniform heating in every room. Flow of water through the main is increased . . . not throttled . . . when branch flow is cut down by this method.

CAST IRON

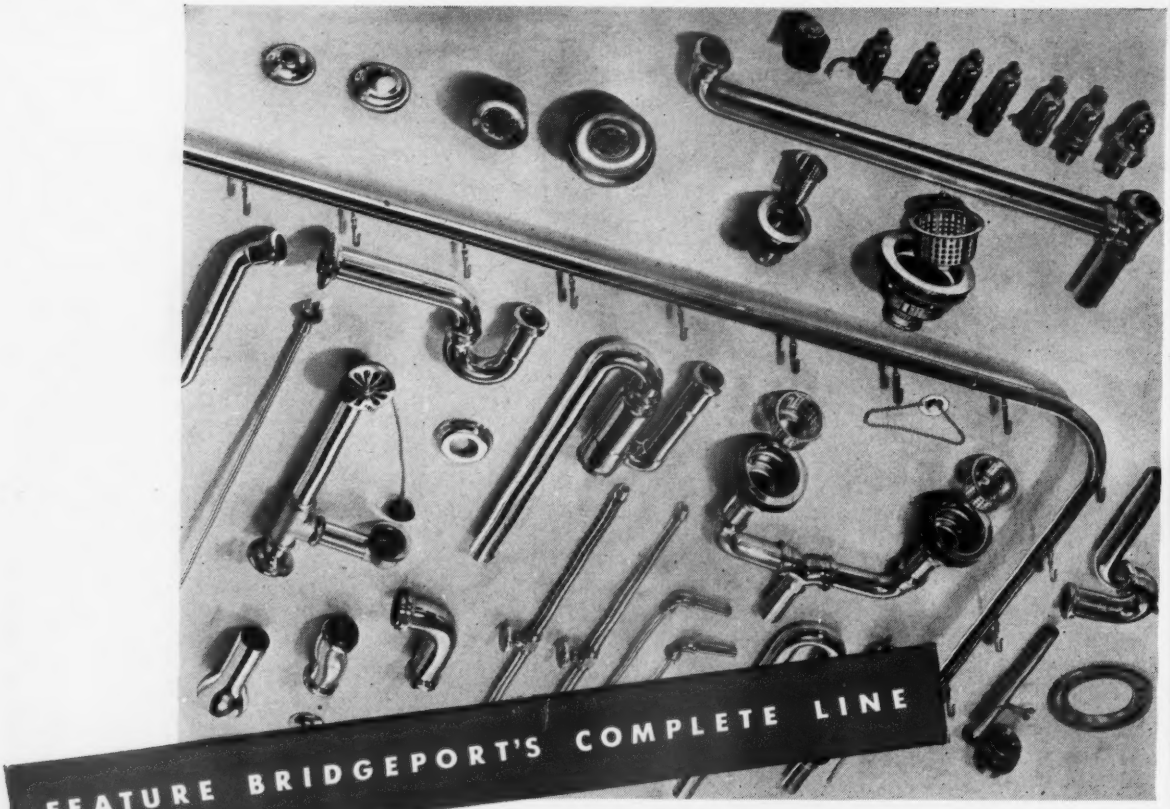
For more information on Thrush Ajustaflo System or Adjustable Supply Tees, write Department A-1 or see your wholesaler.

H. A. THRUSH & CO.
PERU, INDIANA

BRONZE
Pat Applied For



PERFECTLY BALANCED ONE-PIPE HEATING



OF PLUMBING BRASS GOODS TO REALIZE A MORE

Complete profit!

The complete line of Bridgeport Plumbing Brass Goods offers you an opportunity to make more sales, more profit, more satisfied customers. For the Bridgeport line covers a *wide range* of high-quality products for modern kitchens and bathrooms—products such as traps, sink and tray wastes, bath wastes and overflows, basket sink strainers, supply pipes and Traxrod* shower curtain rods.

Many products in the Bridgeport line of Plumbing Brass Goods have exclusive selling features . . . and *all* of the products are carefully designed to meet highest sanitation standards. *All* are beautifully finished and made of the finest materials to give long, satisfactory service.

Bridgeport also manufactures a complete line of air and vacuum valves for one-pipe steam heating systems, copper water tubing and fittings, brass and copper pipe, building copper in rolls and strip. On these products, too, it always pays to specify "Bridgeport." *Reg. U. S. Pat. Off.

"Bridgeport" BRASS CO.

BRIDGEPORT BRASS COMPANY
BRIDGEPORT 2, CONN. • *Established 1865*
Mills at Bridgeport, Conn., and Indianapolis, Indiana
In Canada: Noranda Copper and Brass Limited, Montreal

THE BRIDGEPORT LINE IS CARRIED BY QUALITY-MINDED WHOLESALERS

BRIDGEPORT BRASS

The New DODGE "ROUTE-VANS"

17½" Floor to ground

72" Inside width

76" Inside height

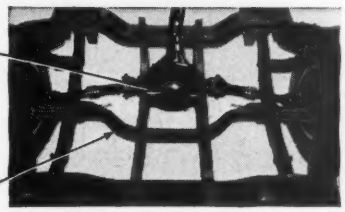
but only
97" Over-all height

32" Side doors

All these advantages are made possible by this revolutionary new chassis

Full-floating *driving* axle. Differential solidly mounted in frame, and rubber-insulated. Drive to wheels is through slip-spline shafts and universal joints. Here is an outstanding engineering achievement.

Note *separate* I-beam load-*supporting* rear axle of special design.



This large-diameter propeller shaft; the rugged clutch and transmission; and the specially designed double-drop frame with husky side rails and rugged cross-bracing, insure long life and economical operation.

Extra rugged front-end construction . . . a "must" in frequent-stop service. Unusually heavy front axle. Large, flexible, rear-shackled front springs. Big brakes.

This 13⅛-inch "kick-up" contributes to the Route-Van's extremely low floor height.

Extra-rugged steering mechanism of double drag-link design minimizes road shocks at the steering wheel. Extra-wide 67-68-inch treads provide short turning diameters. Ease of handling in city traffic is outstanding.

FLUID DRIVE . . . Available, For The First Time, On Commercial Vehicles!

DODGE
"Job-Rated"
TRUCKS
FIT THE JOB . . . LAST LONGER

Detroit Brass

Bronze Ground Key Stops and Cocks

STEAM COCKS

GAS SERVICE COCKS

SOCKET HEAD STOP & WASTE

SOLID HANDLE STOP AND STOP & WASTE

Detroit Brass and Malleable Works

1ST

A. O. SMITH's new "2-for-1" co-op advertising plan is the *first* to take you into full partnership with the distributor and manufacturer . . . the most liberal co-op program ever offered water heater dealers.

Permaglas

TRADE MARK REG. U. S. PAT. OFF.

Duraclad

TRADE MARK REG. U. S. PAT. OFF.

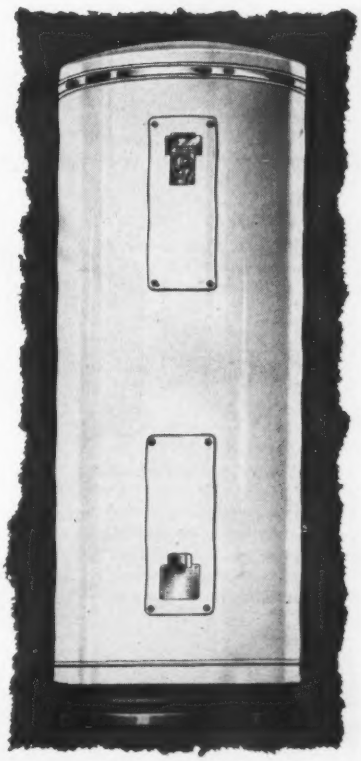
SMITHway ELECTRIC WATER HEATERS

YOU CAN USE IT NOW! Not the usual 50-50 plan for co-operative advertising, the A. O. Smith plan reimburses you for two-thirds of your local advertising for SMITHway Automatic Water Heaters . . . *Permaglas* and *Duraclad*.

It's one more reason "*Permaglas*" is first . . . one more reason why you can make *more* money with "*Permaglas*" . . . the automatic water heater that needs no special attachments or accessories because its tank of glass-fused-to-steel *CANNOT* rust. Get the facts . . . use the coupon . . . now.

Alert Dealers

Display This Emblem



A. O. SMITH CORP.
Dept. DE-149
Water Heater Division
Kankakee, Ill.

Without obligation, tell me how we can make more money selling SMITHway Automatic Water Heaters.

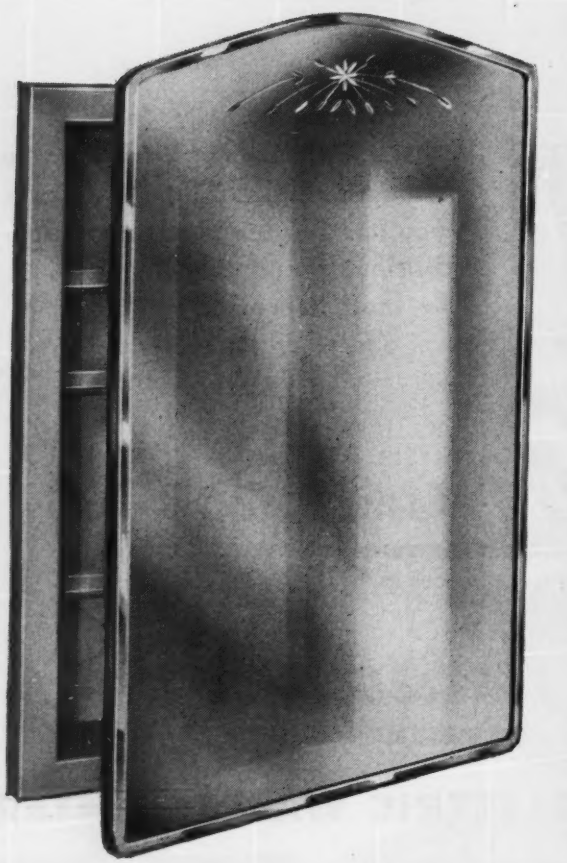
Name_____

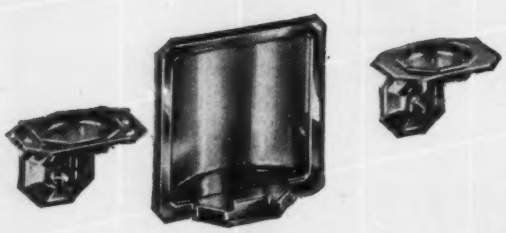
Firm_____

Street_____

City_____ State_____

A. O. SMITH Corporation • Atlanta 3 • Boston 16 • Chicago 4 • Dallas 1
Houston 2 • Los Angeles 14 • Midland 5, Texas • New York 17
Philadelphia 3 • Pittsburgh 19 • San Diego 1 • Seattle 1
Springfield 3, Mass. • Tulsa 3 • International Division: Milwaukee 1
Licensee in Canada: John Inglis Co., Ltd.





How to help customers make up their minds

Give 'em what they want! In medicine cabinets, they want *Gerity*, because of their perfect image *mirrors*—full length, chrome plated, piano-type *hinges*—one piece construction. **So they sell!**

WHAT WOMEN LIKE!

Brightly gleaming chrome
Smartly modern design
All the screws concealed
Easy to keep shining

WHAT MEN LIKE!

Tougher, heavier chrome
Won't flake or wear off
Gerity's reputation with big auto makers for top quality in chrome plate

WHAT BUILDERS LIKE!

Self-centering backplate makes installing a cinch
Exclusive Gerity patent

LIFETIME CHROME by Gerity

EYE-CATCHING DISPLAYS!

Write for complete catalog and price list.

Gerity-Michigan Corporation

ADRIAN, Michigan

America's Choice

CHEVROLET ADVANCE-DESIGN TRUCKS

for All-Around Value!

Ask the experts—

If you ask the drivers, they'll say:

"Chevrolet Advance-Design Trucks can and will take it day after day, month after month. They're easy to handle . . . built with driver safety and comfort in mind."

The mechanics insist:

"Chevrolet trucks last longer because they're designed, engineered and built for the job. They're easier to work on . . . built with an eye to economical maintenance."

The owners will tell you:

"Only Chevrolet has the TRIPLE ECONOMY of low cost operation . . . low cost upkeep . . . and the lowest prices in the entire truck field."

CHEVROLET MOTOR DIVISION, *General Motors Corporation*, DETROIT 2, MICHIGAN

Only the Leader—Chevrolet has all these features:

NEW CHEVROLET 4-SPEED SYNCHRO-MESH TRUCK TRANSMISSION

A special feature in one-ton and heavier duty models that assures new operating ease and efficiency.

THE CAB THAT "BREATHES"

Here are the trucks with the famous cab that "breathes"! Outside air is drawn in and used air is forced out! Heated in cold weather.*

FLEXI-MOUNTED CAB

Chevrolet's Advance-Design Cab is mounted on rubber, cushioned against road shocks, torsion and vibration.

IMPROVED VALVE-IN-HEAD ENGINE

The world's most economical engine for its size now has greater durability and operating efficiency.

SPLINED REAR AXLE HUB CONNECTION

Greater strength and durability in heavy-duty models with this exclusive Advance-Design feature.

PLUS Uniweld, all-steel cab construction • New, heavier springs • Full-floating hypoid rear axles on ¾-ton and heavier duty models • All-round visibility with rear corner windows* • Specially designed brakes • Hydrovac power brakes on two-ton models • Ball-bearing steering • Double-line pre-selective power shift in 2-speed axle at extra cost on two-ton models • Wide base wheels • Standard cab-to-axle-length dimensions • Multiple color options.

**Heating and ventilating system and rear corner windows with de luxe equipment optional at extra cost.*

CHOOSE CHEVROLET TRUCKS FOR TRANSPORTATION UNLIMITED

CHEVROLET

USE IT HORIZONTALLY— OR VERTICALLY

Marsh *TWO POSITION* Circulating Pump

Here's a circulator for hot water heating systems that is quickly adaptable to either vertical or horizontal lines. It is equally efficient in either position. The change in flow is speedily and easily accomplished by removing four bolts and swinging the pump into the desired position, as shown.

Quality construction and long-life design throughout distinguish this pump. High hydraulic efficiency is obtained by the balanced die-cast construction of the bronze impeller, which results in exceptionally close fit to the bored diameter of the body.

The assembly is outstandingly sturdy, for trouble-free operation. A special rubber coupling, with brass inserts, is secured to the motor shaft and pump shaft to prevent any transmission of vibration. A retainer ring, plate, and gasket secure the pump shaft in the bearing housing on the motor side.

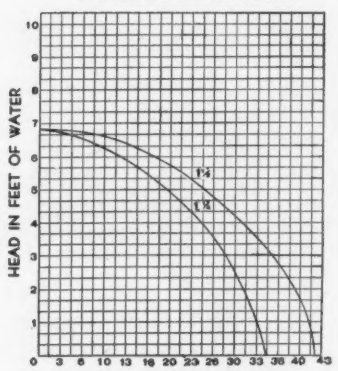
Proper alignment of the motor is maintained by securing it to a steel support and cushioning it in rubber shock absorbers. This motor, a continuous-duty, 1/6 H.P., single phase, 60 cycle, 100 volt, is equipped with an automatic overload relay. It is guaranteed for 18 months against defective materials and workmanship.

Positive lubrication at all times is insured, since the pump shaft rotates in an oilite bearing which is fed through an oil cup in the housing.

A carbon seal and a neoprene rubber seal surround the pump shaft to form a water tight seal, preventing water from entering the bearing assembly. Tension is maintained on this seal by a spring, and a highly finished bearing surface is maintained between the carbon seal and the bearing housing.

Every pump is given a running test to insure trouble-free operation.

CIRCULATOR CAPACITY CHART



No.	Pipe Size	Std. Motors 110 V, 60 Cycle Single Phase	Face to Face	Approx. Shipping Weight
MC-1	1¼"	1/6 H.P.	8-11/16"	44#
MC-2	1½"	1/6 H.P.	8-11/16"	44#

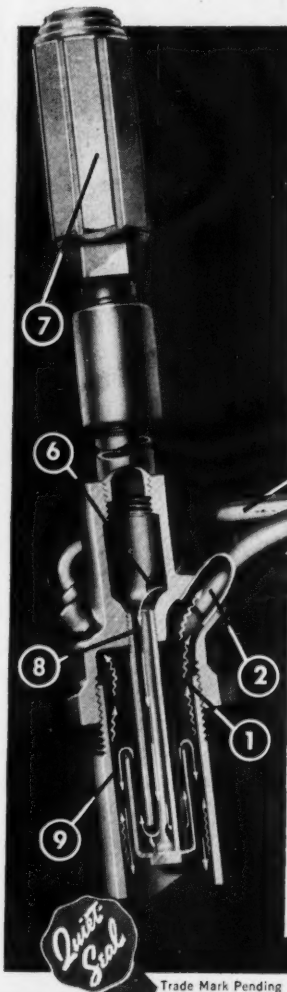
MARSH HEATING EQUIPMENT COMPANY *Since 1865*

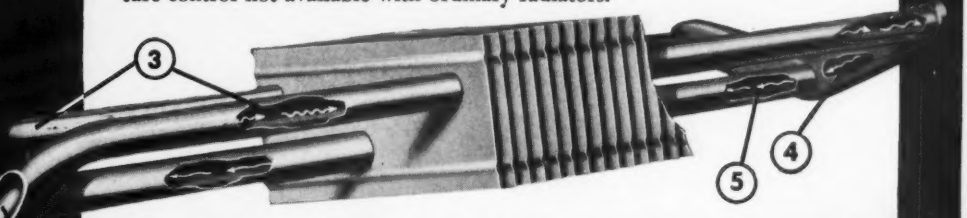
Quality Heating Specialties

NOW..A NEW *Modine* CONVECTOR

Designed Specifically For 1-Pipe Steam Systems

the New QUIET-SEAL*





WHAT IT IS: The new Modine *Quiet-Seal* is a convector designed *specifically* for 1-pipe steam heating systems. It gives you all the economies of 1-pipe steam *plus* the superb heating comfort, individual room temperature control, attractive styling and easy installation of the beautiful new Modine Convector Radiation line. *Quiet-Seal's* design eliminates troubles that result when 2-pipe steam or hot water convectors are adapted to 1-pipe systems. Its one-way flow principle gives you noiseless operation, full heating capacity, fast positive air elimination. Water spitting is eliminated because *Quiet-Seal's* built-in water seal insures free venting. What's more, patented damper permits individual room temperature control not available with ordinary radiators.

HOW IT OPERATES: *Quiet-Seal's* one-way flow principle (proved in thousands of pre-war installations) is shown in cutaway illustration above. Steam enters inlet header (1), is directed into upper tubes (2), passes through these tubes (3), to cross header located at extreme right of illustration. At (4) and (5), steam and condensate are directed to lower tube. Condensate, steam and air are returned through lower tube at (6), at which point air rises in header to air vent (7) where it's freely discharged. Condensate is spilled into built-in trap (8), overflows water seal of trap (9) and drains into supply branch. All components of the *Quiet-Seal* Convector — except ½ inch shank, air vent, coupling, nipples and iron riser — are furnished by Modine.

Trade Mark Pending

*Design and Mechanical Patents Pending

New Beauty . . . Easier Installation . . . Simpler Maintenance mark the New Modine Convector. Functionally styled to complement modern taste, it gives you these outstanding features: (1) Dual-Purpose Damper, (2) Convenient Air Venting, (3) 5-Second Removable Front, (4) Snap-in Lower Grille (optional), (5) Simplified Recessing. For all the facts, on the new Quiet-Seal 1-pipe convector, see your Modine Representative. He's listed in the "Where-to-Buy-It" section of your phone book. Or send in coupon at right.

Modine

Quiet-Seal CONVECTORS

MODINE MANUFACTURING CO.
1502 Dekoven Avenue, Racine, Wisconsin

Gentlemen: Yes! I want the new bulletin describing the New Modine Quiet-Seal Convector for 1-pipe steam systems.

NAME.....

ADDRESS.....

CITY..... STATE.....

AT LAST

A TESTED, SURE-FIRE WAY TO BOOST DISPOSER SALES!

SALES EXPERTS DEVELOP EASY 2-IN-1 PLAN TO SKYROCKET YOUR PROFITS!

As still *another* means of helping you, American Kitchens recently developed a can't-miss plan to boost your American Kitchens Disposer sales!

Tests have proved it SO successful you can double—or even *triple*—your American Kitchens Disposer sales simply by following three simple steps!

SETTING THE STAGE

Have an American Kitchens disposer installed in at least one display sink (connect plumbing). Then stand your American Kitchens Visual Disposer Demonstrator nearby. (If you don't already have this amazing true-action display, write or call your American Kitchens distributor today!)

READ THIS MONEY-MAKING PLAN—IT'S AS SIMPLE AS A-B-C!

1. Show prospects sink of desired size . . . demonstrate features as though interested in selling *only* the sink, nothing more . . . BUT, intersperse sales talk with occasional *casual* mentions of the new American Kitchens Disposer . . . End discussion of sink with *off-hand* mention of fact American Kitchens Disposer can't jam nor clog . . . Then, slowly turning to disposer sales display, add "Let me show you why."

2. Quickly run through disposer display's visual selling chart, adding mention of fast-growing number of people who are now buying disposers . . . Be interesting, but casual . . . Don't OVER-sell disposer at expense of the sink . . . Treat it as *part* of sink—implanting idea that sink and disposer are really *one* unit—representing a *single* purchase instead of two.

3. Return to sink, pointing out how disposer is installed . . . Then, *ignoring* disposer, clinch sink sale! . . . When that's done, *assume* prospects also want disposer, saying *"This sink and disposer combination will turn your neighbors green with envy, Mrs. Brown. And you'll save money having them both installed at the same time."* Then write up another big DOUBLE sale!

USE THIS PLAN WITH *EVERY* SINK PROSPECT AND YOU'LL FIND DISPOSERS ONE OF YOUR TOP PROFIT ITEMS!

KITCHENS *American* **DISPOSERS**

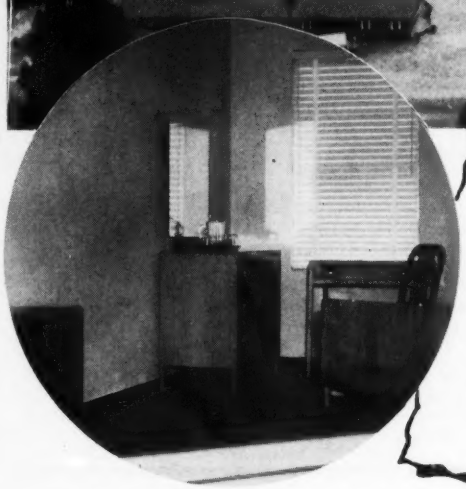
AMERICAN CENTRAL DIVISION AVCO **MANUFACTURING CORPORATION, Connersville, Ind.**

"solved the problem of heating such a project"

WITH *Janitrol*

TRIPLE SERVICE HOT WATER HEATING SYSTEMS

OF MARSHALL TEXAS



Here in Marshall, Texas, is an installation of Janitrol Triple Service Boilers that you and your factory, Surface Combustion Corporation, can be proud of. We succeeded in building a modern and practical auto court catering to traveling [illegible] personnel offering equal service of any hotel in the country. And, with the help of your engineers, we have solved the troublesome problem, namely, the heating of such a project.

Our [illegible] cabins are heated with [illegible] Janitrol WAS-210-64 Type 1-WR Triple Service Boilers which supply not only water for convector heating, but also for sanitary purposes in the baths as well. This eliminated a separate hot water system and no doubt increases the overall efficiency of gas consumption. This installation is well within our policy of using the best nationally known equipment for best customer satisfaction.

R A Hope

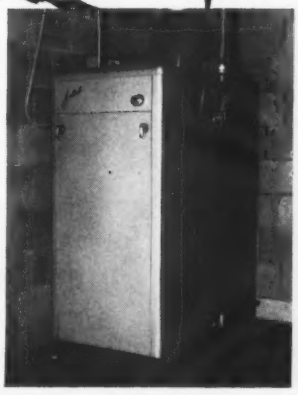
For new installations, or for replacing outmoded equipment in homes, apartments, stores and numerous other types of buildings, this new Janitrol brings many new advantages.

For new construction, the complete Janitrol hot water heating package and distributing system is simplifying the application of radiant panel heating in both ceilings or floors.

For replacement work and certain new construction Janitrol also supplies a complete package for convector heating. Gas, oil or LP-gases can be used to obtain three services: (1) Comfort Heating (2) High Temperature Water for Dishwashers and Laundry (3) Moderate Hot Water for Lavatories and Showers.

As a heating contractor you should have complete information on this revolutionary but proven heating system, write today.

Janitrol Triple Service Units are available in 3 sizes. Multiple installations are made when requirements exceed 210,000 Btu/hr.



SURFACE COMBUSTION CORPORATION • TOLEDO 1, OHIO

NATIONAL HEATING PRODUCTS
All Sizes . . . For All Budgets

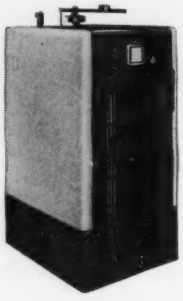
See our complete line at Booth Nos. 106 and 108
9th INTERNATIONAL HEATING & VENTILATING EXPOSITION, January 24-28, 1949

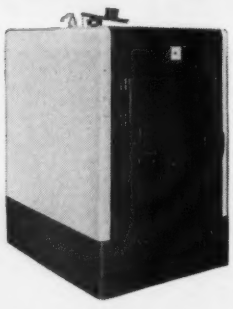
NATIONAL CAST IRON HEAT EXTRACTORS

The features your customers want most—economical heating, long, efficient service, smart appearance, easy convertibility to any fuel—are the engineered results of over seven years of intensive research.

"100" SERIES. Smart and compact for small home installation in kitchens, basements or utility rooms.

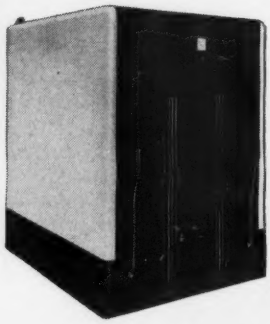
"200" SERIES. Big boiler performance for homes of medium size and some commercial installations.





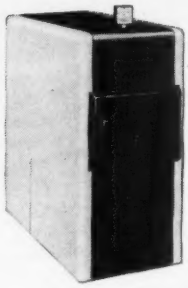
"300" SERIES. For larger homes, small apartments and various commercial installations where more heat is needed.

"400" SERIES. Designed for very large installations where plenty of heat is required to serve many purposes.



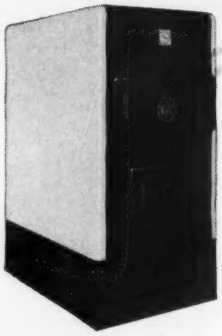
NATIONAL STEEL BOILERS

Their economy of first cost . . . installation . . . operation . . . and upkeep offers outstanding value for residential and commercial heating. Construction and performance meet or exceed all requirements of recognized authorities and codes.



18" and 23" Series Steel Boilers are available in 5 sizes with oil or gas firing for small and medium size residential installations.

For larger homes, smaller apartments and small commercial buildings, 26", 29" and 39" Series Steel Boilers are designed for oil, stoker or gas firing.



And for still larger heating jobs, 16 sizes of Commercial Steel Boilers, designed for hand, stoker or oil firing, and ranging to 35,000 square feet of steam radiation, carry on the tradition of National engineering excellence.

. . . Everything you need!

No matter what size or type of building, there is NATIONAL equipment to heat it adequately, correctly. NATIONAL Oil Heating Units in cast iron or steel, Gas Boilers, Unit Heaters, Art Radiators, Aero Convectors or Fin-Tube Convectors, all carry the well known symbol of superiority—the NRC trademark.

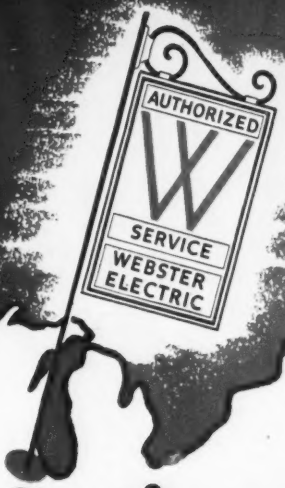
For complete information call your nearest NRC district office or write to The National Radiator Company, 221 Central Avenue, Johnstown, Pa.

NRC

THE NATIONAL RADIATOR COMPANY
JOHNSTOWN, PENNSYLVANIA

WEBSTER ELECTRIC SERVICE

Does *Not* Stop at the Point of Sale . . .



WEBSTER ELECTRIC

Authorized Service Stations

offer factory trained service for dealers on a

NATION-WIDE SCALE

AUTHORIZED W SERVICE WEBSTER ELECTRIC

You'll find them located in the following cities . . .

Colorado: Denver 4, Instrument Service Co., 833 Champa St.
Connecticut: Hartford 6, Bell Pump Service Co., 44 New Britain Ave.
Connecticut: New Haven, Bell Pump Service Co., 750 Congress Ave.
D. C.: Washington, R. E. Michel Co., 2219 5th St., N. E.
Illinois: Chicago 44, W. C. Morse Co., 4629 West End Ave.
Illinois: Rockford, Oil Heat Parts Service, 608 Lafayette Avenue
Illinois: Winnetka, North Shore Heating Supply Co., 806 Oak St.
Iowa: Des Moines, Iowa Electric Motor Service, 725 Tuttle St.
Maine: Portland 3, Refrigeration & Oil Burner Supply Co., 133 Marginal Way
Maryland: Baltimore 2, R. E. Michel Co., 1011 Greenmount Ave.
Massachusetts: Cambridge, Cronin Supply Co., 60 Broadway
Massachusetts: Framingham, Oil Heating Supply Co., 8 Cedar St.
Massachusetts: Malden, E. L. Kimball Co., 25 Lynde St.
Massachusetts: Springfield, Bell Pump Service Co., 888 Main St.
Massachusetts: Wollaston, W. S. Plummer, 109 Lincoln Ave.
Massachusetts: Worcester, John W. Walsh, Inc., 66 Grove St.
Michigan: Detroit 2, Wm. G. Boales & Associates, 6429 Hamilton Ave.
Michigan: Detroit 3, Hydraulic & Pump Repair Co., 711 E. McNichols Rd.
Minnesota: St. Paul 4, Thermal Co., Inc., 2526 University Ave.
Missouri: Kansas City 8, Superior Refrigeration Supply Co., 1816-18 Walnut St.
Missouri: St. Louis 10, Crescent Parts & Equipment Co., Inc., 825-831 S. Boyle Ave.
New Hampshire: Portsmouth, Earl H. Clark, 510 Sherbourne Road
New Jersey: Elizabeth, Certified Fuel Unit Service, 600 Spring St.
New Jersey: Hawthorne, Universal Engineering Co., 344 Wagaraw Rd.
New Jersey: Merchantville, Certified Fuel Unit Service Co., Box 136
New Jersey: Newark, Certified Fuel Unit Service, 671-3 Sanford Ave.
New Jersey: Pennsauken Twp., Certified Fuel Unit Service, Browning Road Circle, Jct. Rts. 38 & 40.
New York: Albany, Certified Fuel Unit Service Co., Inc., 1018 Central Ave.
New York: Bronx 61, Vin's Oil Burner Parts Supply Co., 3614 E. Tremont Ave.
New York: Brooklyn 16, The Capson Co., Inc., 106 Rogers Ave.
New York: Buffalo, Frontier Oil Refining Corp., 367 Northampton St.
New York: Flushing, The Capson Co., 40-16 149th Place, Murray Hill Plaza
New York: New York 21, Intercity Heat and Power Supply Co., 1366 York Ave.
New York: Rochester, Rochester Fuel Pump Service, 517 Jay St.
New York: Scarsdale, A. B. Wolle & Co., 69 Harney Road
New York: North Syracuse, E. A. Porter, Buffalo Pump Service, 440 S. Bay Road
North Carolina: Burlington, Alley & Rader Services, 1006 Webb Ave.
Ohio: Cincinnati 10, F. E. Winstel Co., 1218-20 Race St.
Ohio: Cleveland, Ohio Pump Service Co., 7904 Lorain Ave.
Ohio: Toledo 2, Toledo Auto Electric Co., 35 17th Street
Oregon: Portland 14, Industrial Control Co., 1412 E. Burnside
Pennsylvania: Philadelphia, Certified Fuel Unit Service Co., 3412-14 W. Allegheny Ave.
Rhode Island: Providence 3, Providence Plumbing Supply Co., Inc., 47 Pine St.
Rhode Island: Providence, R. I. Fuel Pump Service Co., Inc., 847 W. Main St.
Utah: Salt Lake City 7, Inter-Mountain Oil Burner Supply Co., 4045 S. State St.
Virginia: Norfolk, Refrigeration Suppliers, 633 W. 24th St.
Virginia: Richmond, R. E. Michel Co., 514 S. Pine St.
Virginia: Roanoke, Southern Refrigeration Corp., 1850 S. Jefferson St.
Washington: Seattle, Seattle Pump Service Co., 609 8th Ave. N.
Washington: Spokane, Charles A. Black, N. 614 Monroe St.
Wisconsin: Milwaukee, Refrigeration Parts Co., 2534 W. Fond Du Lac Ave.

Webster Electric Fuel Units are manufactured in Canada by Canadian Acme Screw & Gear, Ltd., Toronto

WEBSTER W **ELECTRIC**
RACINE WISCONSIN

Established 1909

Export Dept.: 13 E. 40th Street, New York (16), N. Y. Cable Address "ARLAB" New York City

"Where Quality is a Responsibility and Fair Dealing an Obligation"

NEW! FREE WALL CHART

DEALERS:

A new handy wall chart giving basic servicing information on current Webster Electric Fuel Units is now available. Mail this coupon to Webster Electric Co., Racine, Wis., for your free copy. (FO)

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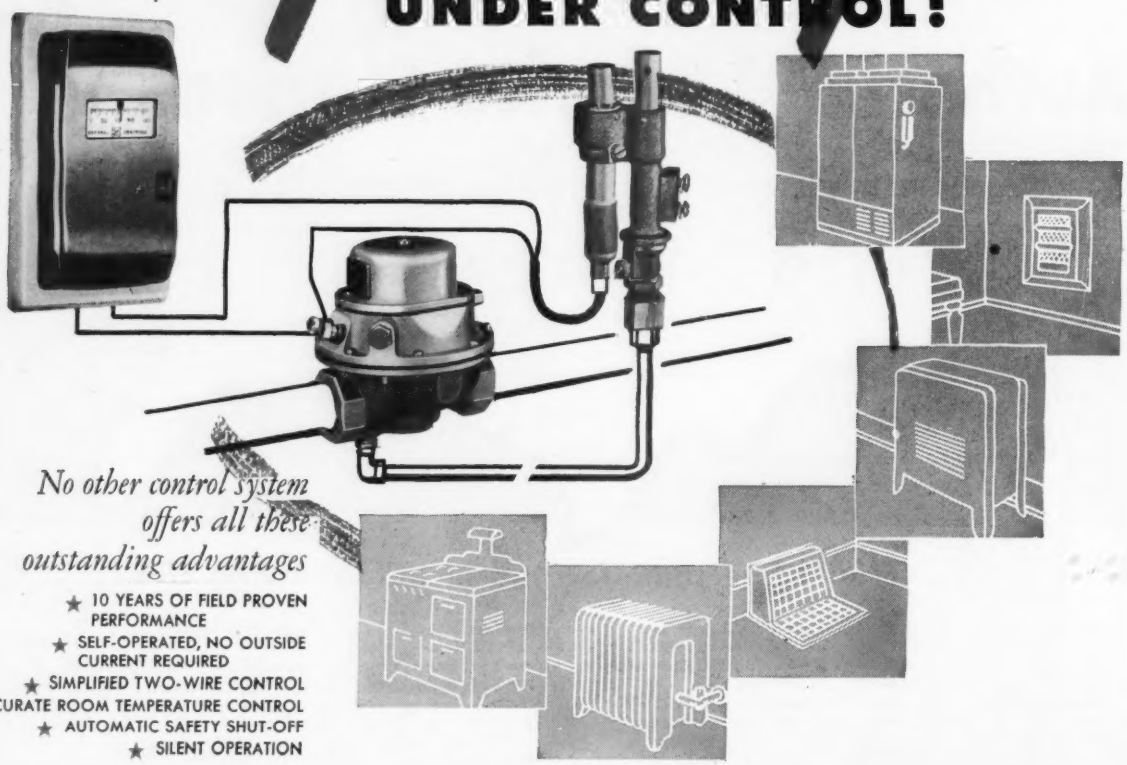
CITY_____ ZONE____ STATE____

Completely UNDER CONTROL!



No other control system offers all these outstanding advantages

- ★ 10 YEARS OF FIELD PROVEN PERFORMANCE
- ★ SELF-OPERATED, NO OUTSIDE CURRENT REQUIRED
- ★ SIMPLIFIED TWO-WIRE CONTROL
- ★ ACCURATE ROOM TEMPERATURE CONTROL
- ★ AUTOMATIC SAFETY SHUT-OFF
- ★ SILENT OPERATION

THE NEW 500 M. V. B-60 COMPLETELY SELF-CONTAINED AND SELF-OPERATING CONTROL SYSTEM *ORIGINATED* BY GENERAL CONTROLS

For natural, manufactured or L.P. gases. For all kinds of domestic, commercial and industrial applications. System consists of the B-60 pilot operated diaphragm type gas valve, the T-70 Series Snap-action Thermostat, which is scientifically correct in design, and the new improved ingenious PG-9 Pilot Generator which produces 450 to 500 millivolts of operating current, safety control, and main burner ignition. The B-60 Series of controls have set new standards throughout the gas industry. For complete specifications on the GENERAL CONTROLS broad line of Automatic Pressure, Temperature and Flow Controls, request new Catalog and Service and Instruction Manuals.

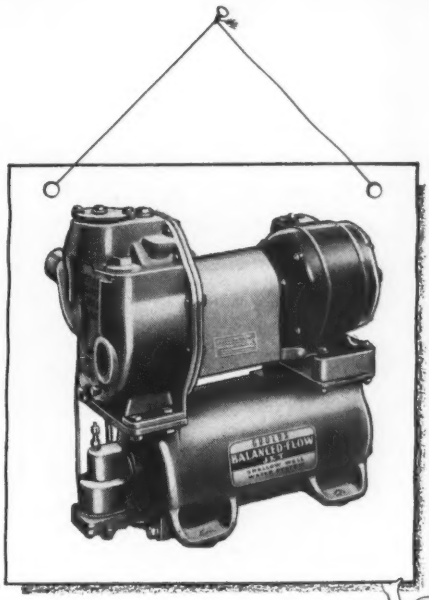
Automatic, Safe, Silent and Self-Operated

GENERAL CONTROLS

Manufacturers of Automatic Pressure, Temperature & Flow Controls

FACTORY BRANCHES: Birmingham (3), Boston (16), Chicago (5), Cleveland (15), Dallas (2), Denver (10), Detroit (8), Glendale (1), Houston (2), Kansas City (2), New York (17), Philadelphia (40), Pittsburgh (22), San Francisco (7), Seattle (1) • **DISTRIBUTORS IN PRINCIPAL CITIES**

GREAT IN '48



THE LINE FOR '49

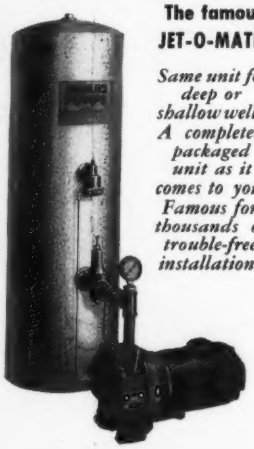
GOULDS dealers who had a banner year in 1948 are looking forward to an even more profitable and satisfying water system business in '49. They know that the GOULDS line — *complete,* with the finest pump for *every* prospect's needs — is their assurance of a full share in the year's rich water systems market.

Take Goulds Balanced-Flow Jet (illustrated above), for example. Introduced just two years ago, its rise to fame has been meteoric—because it's *the only pump of its kind!* It's *tankless* with self-adjusting capacity . . . offers owners "city water service" in their homes. It's easy to install . . . and *low-priced* to meet mail order competition. But only GOULDS dealers can cash in on the Balanced-Flow — and the other superior pumps in the GOULDS line.

Our greatly increased production facilities enable us to expand GOULDS dealerships in some areas. See your distributor—or write us for his name.

GOULDS PUMPS INC. **Seneca Falls, N. Y.**

ANOTHER GOULDS "BEST"



The famous JET-O-MATIC

Same unit for deep or shallow wells. A completely packaged unit as it comes to you. Famous for thousands of trouble-free installations.

GOULDS WATER SYSTEMS

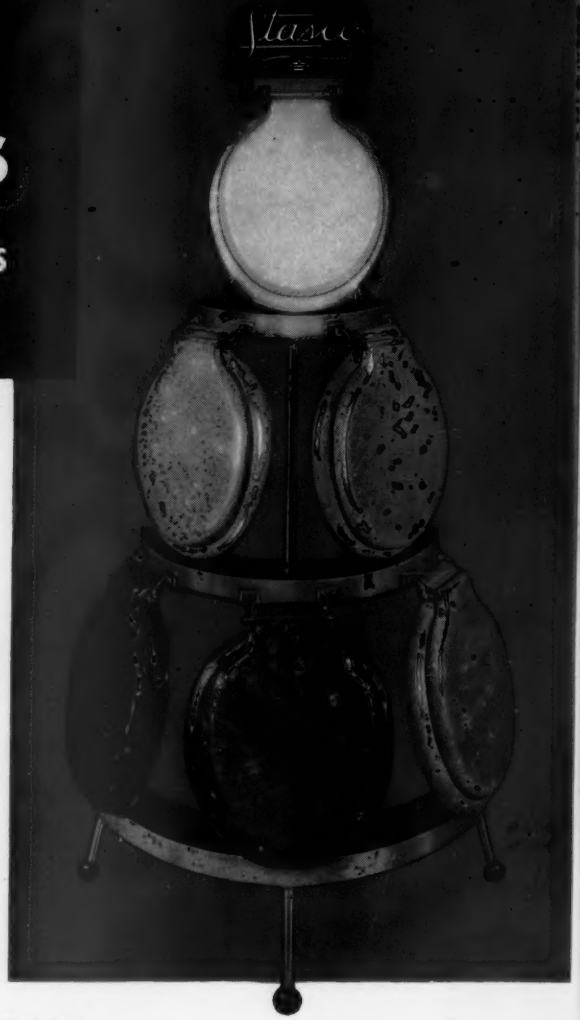
GOULDS WATER SYSTEMS

101ST YEAR

FOR EVERY FARM AND HOME NEED

SELL MORE STASCO SEATS

with these Stasco Displays



• A $20 DISPLAY STAND FOR ONLY $10 WITH THE PURCHASE OF SIX STASCO AIRLITE OR STASCO DE LUXE PEARL SEATS

Displayed for the first time at the Master Plumbers' Convention, the Stasco Colored Airlite Seat won immediate acceptance. It's unquestionably the most beautiful toilet seat ever made. Stasco Airlite comes in white, black, burgundy, peach, green and blue . . . colors picked by decorators to harmonize with other bathroom accessories.

The display stand is a knockout! It's half round, and is equally effective away from or against the wall. Two stands, back to back, make a beautiful island display. It costs us $20 to make—it's yours for only $10 with the purchase of six Stasco Airlite or Stasco De Luxe Pearl Seats, or any combination of six of these seats.

THIS BEAUTIFUL DISPLAY STAND . . .

FREE WITH THE PURCHASE OF SIX STASCO AIRLITE OR STASCO DE LUXE SEATS

Highly buffed and polished to a beautiful, lustrous finish, Stasco De Luxe Pearl Seats are available in white, black and five decorator colors . . . peach, green, blue, burgundy, orchid. • The display stand comes knocked down for easy assembly. The tiles are peach, with blue and white lettering. This most attractive display stand is yours, ABSOLUTELY FREE, with the purchase of six Stasco Airlite or Stasco De Luxe Pearl Seats, or any combination of six of these seats.

Stasco

STAND[illegible] TANK & SEAT COMPANY
CAMDEN, NEW JERSEY

Guaranteed by Good Housekeeping

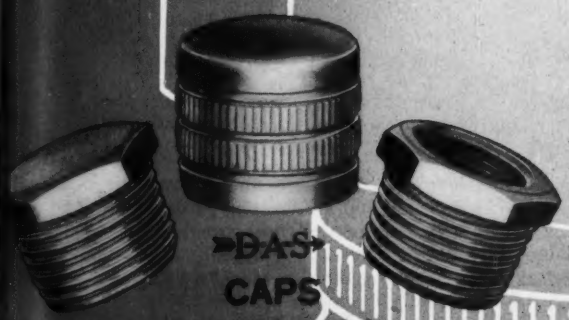
Nationally Known—Nationally Advertised

ORDER FROM YOUR WHOLESALER OF PLUMBING SUPPLIES—TODAY!

Look for the trademark!!

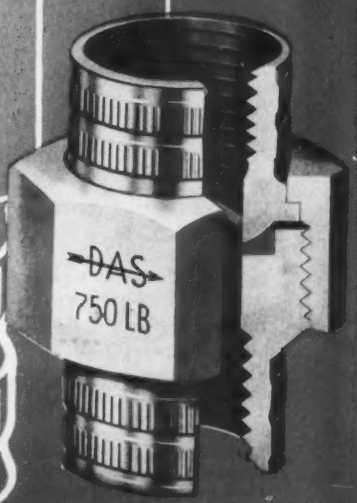
➤D-A-S➤

All genuine ➤D-A-S➤ pipe unions can be easily identified. You can be assured of satisfaction when you see this famous trademark. A successful product is bound to be imitated but only ➤D-A-S➤ can use this mark of quality.



➤D-A-S➤ CAPS PLUGS, and BUSHINGS

- Machined from solid bars of the same type steel used for the best pipe
- Solid brass seat
- Non porous
- All sizes ⅛" to 1"
- Guaranteed satisfactory on 750 lb. water or 300 lb. steam pressure



Made in Defiance, Ohio

USED EVERYWHERE

SEE YOUR JOBBER

➤D-A-S➤
DIVISION OF
THE DEFIANCE AUTOMATIC SCREW CO.
FORT WAYNE ROAD
DEFIANCE, OHIO

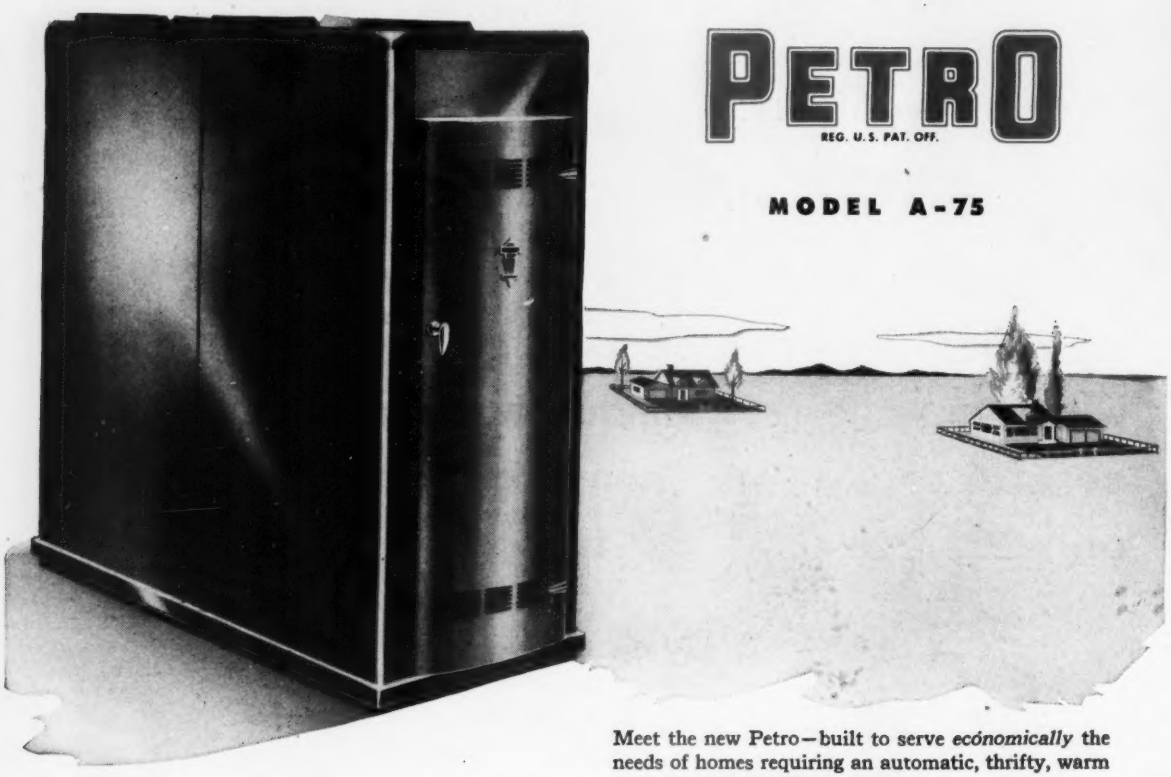
"Your wrench can't slip on a ➤D-A-S➤ union"

NEW SALES HORIZONS IN WARM AIR HEATING

. . . now yours with

PETRO
REG. U. S. PAT. OFF.

MODEL A-75



What this new PETRO offers:

High Heat Transfer: Assured by design of furnace, and by fire box and heat transfer surfaces precisely engineered for ¾ gallon flame.

Controlled Air Circulation: Without drafts or wide temperature fluctuations.

Air Cleaning And Humidifying: In addition to heating and circulating.

Petro "Oil-Miser" Oil Burner: Specially designed for Model A-75, with a Petro burner's traditional knack of squeezing every drop of fuel oil heat-dry. Patented Petro nozzle produces a hollow cone of finely atomized oil spray that ignites instantly and burns completely at high heating efficiency.

Other Burner Features: Safe, reliable, *continuous* electric ignition; heavy-duty, long-hour motor with automatic overload switch; over-sized transformers, radio-shielded and moisture-proof.

Fuel Oil Savings: By supplying 75,000 Btu's per hour, Model A-75 meets the need of low oil consumption in homes where a larger furnace output would result in costly, prohibitive fuel bills.

Meet the new Petro—built to serve *economically* the needs of homes requiring an automatic, thrifty, warm air unit of 75,000 Btu capacity.

Displaying Petro's traditional quality throughout, it can be relied on for that fine heating performance which only Petro's 45 years oil heat experience can provide. Fuel oil economy . . . eye appeal . . . owner satisfaction . . . no wonder this new Model A-75 means new sales opportunities in warm air heating!

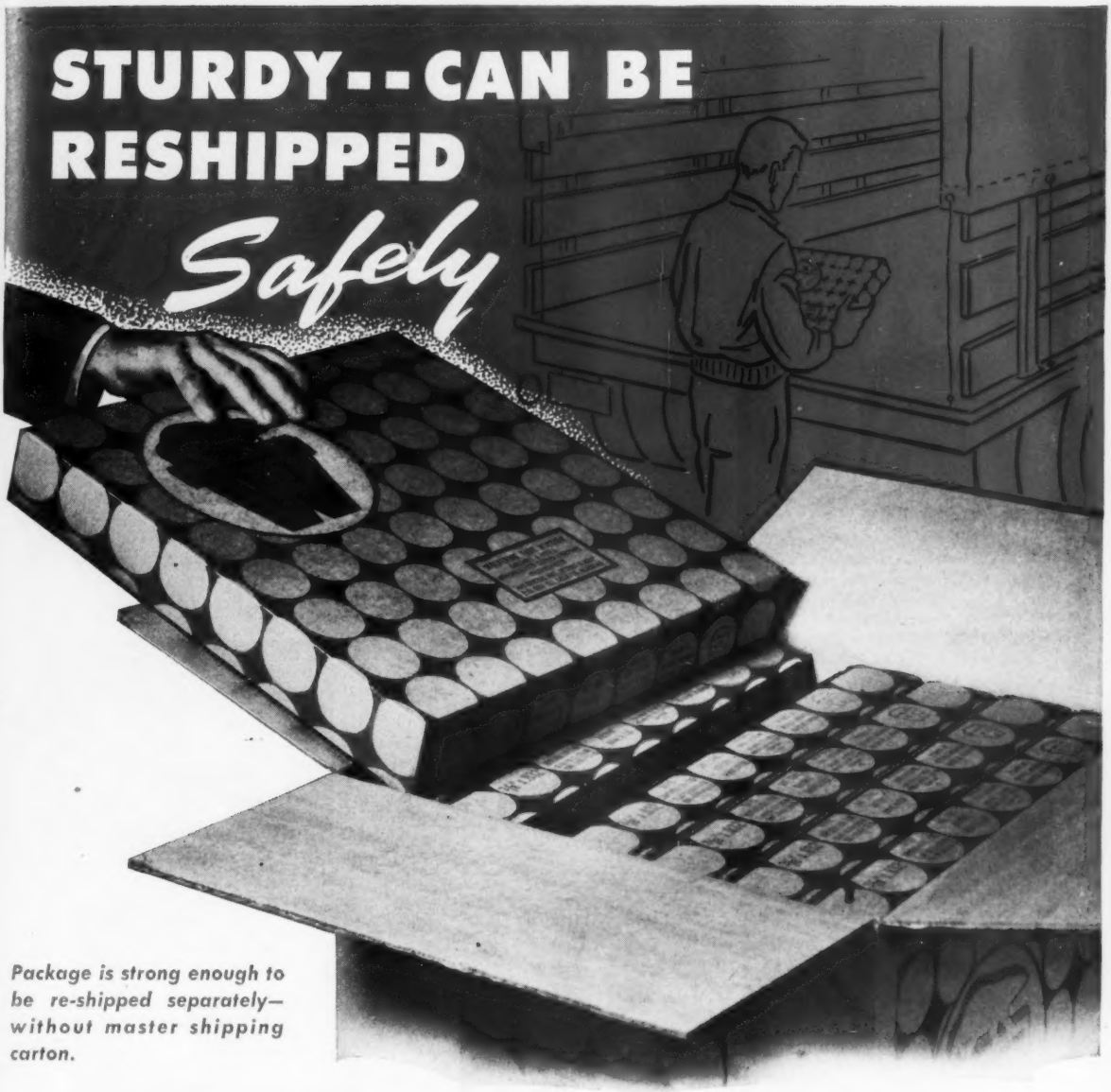
For the whole story, contact the Petro heating and plumbing jobber in your wholesale trading area.

PETROLEUM HEAT AND POWER COMPANY
Stamford, Connecticut
Makers of Good Oil Burning Equipment Since 1903
REFINERIES . . . FUEL OIL STORAGE AND DISTRIBUTION TERMINALS
NATIONWIDE OIL BURNER SALES AND SERVICE FACILITIES

PETRO
REG. U. S. PAT. OFF.

OIL BURNERS • BOILER-BURNER UNITS
FURNACE-BURNER UNITS • WATER HEATERS

STURDY--CAN BE RESHIPPED *Safely*



Package is strong enough to be re-shipped separately—without master shipping carton.

WOLVERINE COPPER WATER TUBE

individually packaged in 60-ft. coils

There IS a difference in tubing— Specify Wolverine

Every 60-foot coil of Wolverine Copper Water Tube comes to you in a sturdy package carefully protected against all possible harm.

Every coil reaches you in the finest state of manufacturing perfection.

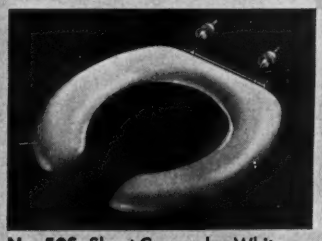
These new packages come to you in master shipping cartons from which they can be easily removed for re-shipment to your customers. All the ends are packed facing one way, plainly marked showing contents. Handling is greatly simplified.

WOLVERINE TUBE DIVISION
CALUMET AND HECLA CONSOLIDATED COPPER COMPANY
INCORPORATED
MANUFACTURERS OF SEAMLESS NON-FERROUS TUBING

1435 CENTRAL AVENUE • DETROIT 9, MICHIGAN

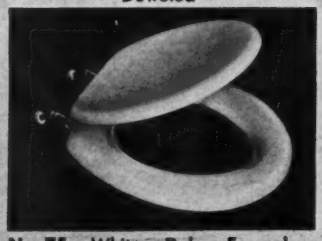
Silkauf's LONG LIFE TOILET SEATS

No. 90 Mother of Pearl Sheet Covered — Hardwood Doweled



No. 50S Sheet Covered — White
No. 50 Enameled — White

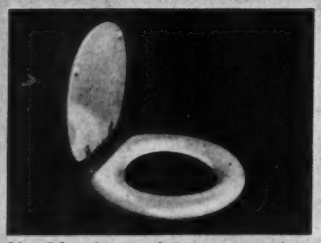
Our **PEARL COVERED SEATS** are made in **18** *luxurious colors*



No. 75 White — Deluxe Enamel
No. 75S Seamless Sheet Covered

No. 55S Sheet Covered — White
No. 55 Enameled — White

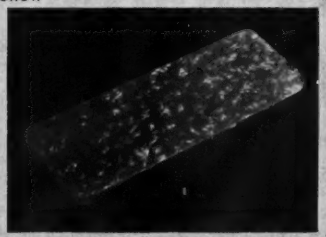
Guaranteed WILL NOT ***SPLIT WARP*** OR ***CRACK***



No. 30 Sprayed Competitive Seat — White
No. 100 Sprayed — Green, Blue Peach or Yellow

No. 95E Elongated — Pearl Sheet Covered
No. 97E Elongated — Enameled White

CHROME DISPLAY STAND



Replacement Pearl Covered Tank Top — 6 Gal. or 8 Gal.

No. 40 Pearl Covered Bath Stool 18" or 24"

We are the largest and only Western Manufacturer producing a ***Complete Seat Line*** Sold exclusively thru jobbers. Write for colorful catalog and price list of our complete line.

Silkauf PRODUCTS OF CALIFORNIA
P.O. Box 4737, Los Angeles 1, Calif.

When Your Customers say *Specify* SAFETY VALVES

BEATON & CADWELL RELIEF VALVES

CADWELL NO. 25E

SELF CLOSING TEMPERATURE AND PRESSURE RELIEF VALVE

When your customers ask for a relief valve allowing the *thermostatic element* to extend into the tank through the insulation, they are asking for the CADWELL NO. 25E . . . the valve that assures your customers full protection. The CADWELL NO. 25E protects all tanks by having thermostat in hottest water. The 25E has all the features of the CADWELL No. 25 plus the 6" extension thermostat. Pressure: Factory sealed or set as desired between 50 and 175 lbs. Temperature: Standard setting—210°. Sizes: ½" and ¾" I.P.S. Male Inlet. Female Drain: ½" I.P.S.

STANDARD *Cadwell* NO. 25

Is *Self Closing.*
Diaphragm Operated.
Thermostatic Element is out of water except when discharging.
Easily taken apart . . . easily cleaned without disturbing temperature or pressure adjustment. Same sizes and pressure settings as No. 25E.

Cadwell
No. 35
Pressure Relief Valve. Diaphragm Operated. ½ or ¾" I.P.S. Pressure Setting as Desired.

Cadwell
No. 75
Adjustable Poppet Type Pressure Relief Valve. Set with visible pressure markings. ½" I.P.S. 75 to 105 lbs.

Cadwell
No. 105
Poppet Type Pressure Relief Valve. ½" I.P.S. Pressure Settings as Desired.

No.'s 35-75-105 can be furnished with fusible plug for temperature relief. (They are not self-closing on temperature relief.)

Cadwell
NO. 10 AIR VALVE
Thermostatic type valve. Assures maximum heating efficiency. Popular for both new jobs and replacements. Stock up now! Available in either adjustable or non-adjustable type.

Perfection FLOOR & CEILING PLATES
Give a neat appearance to all piping jobs. Supplied in nickel plated and chromium plated. Order your supply today!

The BEATON & CADWELL MFG. CO.

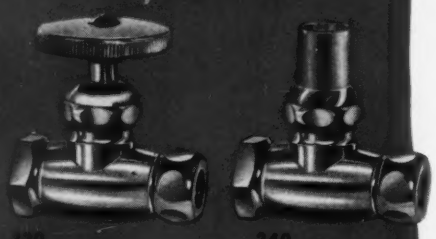
ESTABLISHED 1894 *New Britain, Conn.*

LAVATORY STOPS TO FIT *Every Need*

44 Sizes — Three Finishes

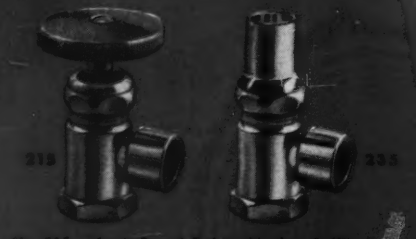
No. 225 — Slip Joint Angle Stop. Wheel handle. Sizes 3/8" or 1/2" I. P. x 7/16" or 1/2" or 9/16" or 11/16" tube. Rough Brass, Rough Chromium or Polished Chromium.

No. 245 — Same as No. 225, but with lock shield and loose key. Rough Brass, Rough Chromium or Polished Chromium.



No. 220 — Slip Joint Straight Stop. Wheel handle. Sizes 3/8" or 1/2" I. P. x 7/16" or 1/2" or 9/16" or 11/16" tube. Rough Brass, Rough Chromium or Polished Chromium.

No. 240 — Same as No. 220, but with lock shield and loose key. Rough Brass, Rough Chromium or Polished Chromium.



No. 215 — Angle Stop. I. P. thread both ends. Wheel handle. Sizes, 3/8" or 1/2" x 3/8" or 1/2", female ends. Rough Brass, Rough Chromium or Polished Chromium.

No. 235 — Same as No. 215, but with lock shield and loose key. Rough Brass, Rough Chromium or Polished Chromium.

No. 214 — Straight Stop. I. P. thread both ends. Wheel handle. Sizes 3/8" or 1/2" x 3/8" or 1/2", female ends. Rough Brass, Rough Chromium or Polished Chromium.

No. 234 — Same as No. 214, but with lock shield and loose

Eight different lavatory stops in a total of 44 sizes and three finishes (rough brass, rough chromium and polished chromium) make a variety of items to fit every possible need! Sell them right along with Price-Pfister high quality lavatory fixtures — *and stay three jumps ahead of competition.*

HIGH QUALITY — 38 years experience. All operations performed in our big, modern plant—one of America's finest and most complete.

100% HYDROSTATICALLY TESTED — To insure water tight closing and long years of service.

ALL BRASS PARTS — Except for wheel handles, which are zinc die cast under 15,000 lbs. pressure.

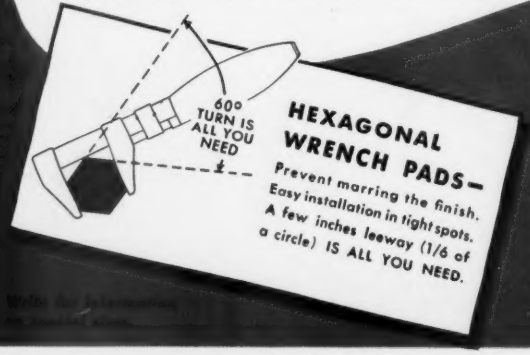
TRIPLE PLATED — Heavy platings of copper, nickel and chromium on all chrome items. Resists wear and corrosion indefinitely.

IMMEDIATE DELIVERY — All items now in full production. No waiting.

Sold Through Plumbing Wholesalers • Write for Condensed Quick Reference Catalog and Price List.

PRICE-FISTER BRASS MFG. CO.

3011 Humboldt Street • Los Angeles 31, California


60° TURN IS ALL YOU NEED
HEXAGONAL WRENCH PADS—
Prevent marring the finish. Easy installation in tight spots. A few inches leeway (1/6 of a circle) IS ALL YOU NEED.

There is more pipe being made today than ever before. Even so, distributors don't get all the pipe they need to meet the present demand which is at an all-time high.

Your Spang CW Pipe Distributor doesn't pretend to be another Solomon. But he is making an earnest effort to divide his allocation of Spang CW equitably because he wants to help you and all of his customers keep jobs on the move.

When you need Spang CW Pipe, fixtures, fittings, valves or other material—contact your Spang CW Distributor first. You'll find that he's a dependable source of supply.

SPANG-CHALFANT

Division of The National Supply Company

EXECUTIVE OFFICES: PITTSBURGH, PA.

District Sales Offices: Atlanta; Boston; Chicago; Denver; Detroit; Houston; Los Angeles; New York; Philadelphia; Pittsburgh; St. Louis; San Francisco; Tulsa

SPANG CW

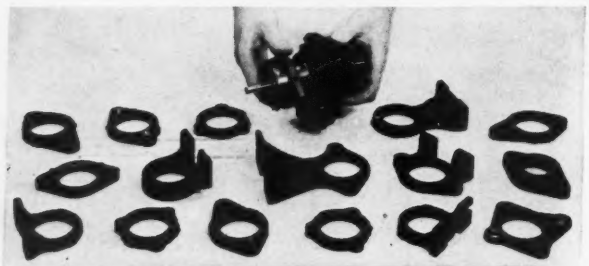
QUALITY *that is recognized wherever pipe is used*

HOW TO SELECT

FUEL UNITS For ANY Oil Burner

Regardless of the design of oil burner or conditions surrounding the installation, you'll find the proper Fuel Unit and mounting in the Sundstrand complete line. From this line you will be able to meet the requirements of practically any oil burner installation or replacement.

MOUNTINGS FOR ALL TYPES OF BURNERS



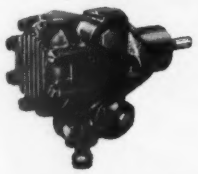
All Sundstrand Fuel Units can be furnished with mounting bracket integral with the pump housing. All excepting the Model L1 can be furnished without integral flange for bracket mounting. In addition, there are adaptor brackets (see illustration above) for Sundstrand Fuel Units for mounting to practically any type of oil burner. For information on the complete line of Sundstrand adaptor brackets, write for bulletin D-107.

FREE ADDITIONAL DATA—This booklet will give you more complete details on the Sundstrand line. Use it for a handy reference on those unusual jobs that come up now and then. Write for your copy today. Ask for Bulletin No. D-37. NOTE: Sundstrand Fuel Units are being manufactured in Canada by John Inglis, Ltd., 14 Strachen Avenue, Toronto, Canada.

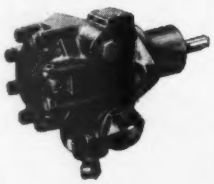
Fuel Units for All Types of Burners

S1-B — Most popular unit for domestic oil burners. Entire capacity of pumping members is 21 GPH. Maximum nozzle capacity of either 4½ or 6 GPH depending upon strainer rating.

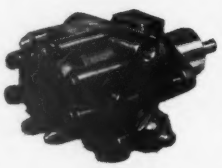
S1-H — Has maximum nozzle and strainer capacity of 13 GPH. Entire capacity of pumping member is 27 GPH.



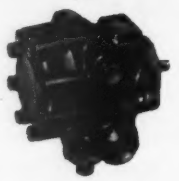
S1-J—Used on oil burners with main line filtering means of capacity equal to or greater than maximum capacity of burner. Maximum nozzle capacity is 20 GPH. Entire capacity of pumping members is 35 GPH.



S-2—Standard two-stage pump with strainer. Has maximum nozzle capacity of 6 GPH. Entire capacity of pumping members is 18 GPH.

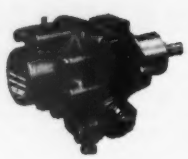


Model R — Two Stage — These units are self-purging and recommended for two line installations where unusually long suction lines and high lifts are required. Available in either 6 or 10 GPH nozzle and strainer capacities. Entire capacity of pumping members is 18 and 21 GPH respectively.



L1—For small oil burners and water heaters. Has nozzle capacity of 2 GPH, has 25 watt power consumption, and when operated at 1725 RPM provides pumping capacity of 6 GPH. Recommended for gravity feed installations only.

1-OB Series — Pumps without strainer and regulating valve. Made in 3 sizes of 21, 27 and 35 GPH.



SOLENOID OPERATED UNITS FOR FAST CUT-OFF

Available for any Sundstrand Model S1 Fuel Unit when factory assembled. It provides instantaneous cut-off on high resistance type furnaces and eliminates an unbalanced air-oil condition upon shutdown. Prevents "flutter" and "puff-back" in combustion area and produces absolute clean burning.

SUNDSTRAND MACHINE TOOL CO. ROCKFORD, ILLINOIS, U.S.A.

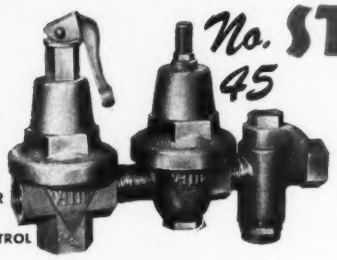
SUNDSTRAND HYDRAULIC DIVISION

2558 ELEVENTH STREET • ROCKFORD, ILLINOIS

FUEL UNITS • HYDRAULIC PUMPS • TRANSMISSIONS • FLUID MOTORS • VALVES and CONTROLS

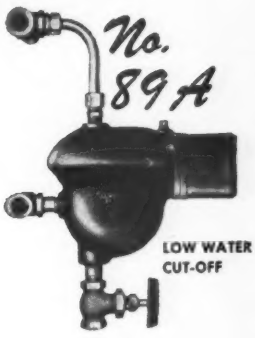
in '49 Watts... PROTECTION and CONTROL

Will increase from Coast to Coast.. be prepared



No. 45 STOCK NOW

HOT WATER HEATING DUAL CONTROL



No. 89A

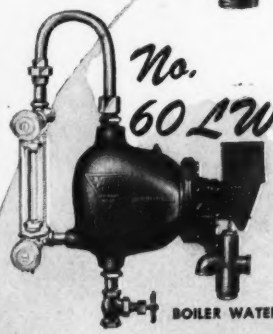
LOW WATER CUT-OFF

No. 530C

CALIBRATED RELIEF VALVE

No. 71

TEMPERING VALVE



No. 60LWD

BOILER WATER FEEDER

No. 40XL

AUTO-THERM T. & P. RELIEF VALVE

No. 135

WATER PRESSURE REDUCING VALVE WITH STRAINER

No. 30L

DIAPHRAGM TYPE PRESSURE RELIEF VALVE

Over eighty per cent of Watts Protective-Control Devices are made to safeguard vital parts of residential heating systems. THEY are the silent guardians that protect against destructive material dangers in the home. THEY are engineered to meet present and proposed design for heating and domestic hot water system requirements. THEY are efficient and dependable and the name Watts on the unit is assurance of fullest possible protection and control.

WATTS REGULATOR COMPANY

LAWRENCE MASSACHUSETTS

MANUFACTURERS OF

Automatic · TEMPERATURE *and* PRESSURE REGULATING SAFETY DEVICES ·

...PROTECT— CONTROL

Partners in Pioneering-

The Master Plumber and Ingersoll Join Forces

in a Step as Far-Reaching as . . .

The First Bathtub in America

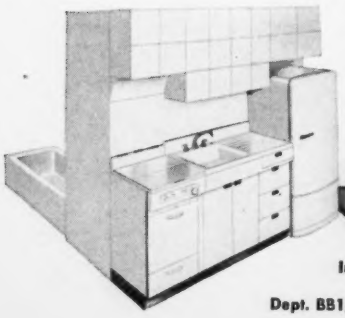
In 1778, Benjamin Franklin imported a bath tub from France—a slipper-shaped contrivance designed for blissful privacy. In it Franklin liked to read while he soaked. He even received guests while bathing. His great prestige precluded out-spoken criticism. But his "scandalous" habit of regular bathing created waves of whispers among local gossips.

Plumbing has come a long way since Franklin's time. Today's big news is the Ingersoll Utility Unit. With it the Master Plumber and Ingersoll are jointly contributing to better designed small-home utilities.

Every Unit is assembled by A. F. of L. Building Trade Mechanics and is sold, installed and serviced through you—the Master Plumber.

It's an open door to new business. Architects and builders like the Ingersoll Utility Unit and they'll turn to the man who can supply it. You make the profit on the sale—a profit on a complete line of fixtures including refrigerator, range and kitchen cabinets in addition to the usual plumbing components. You make a profit on the installation—another on service.

Share in these Ingersoll profits. Write for the name of the wholesaler in your area, today.

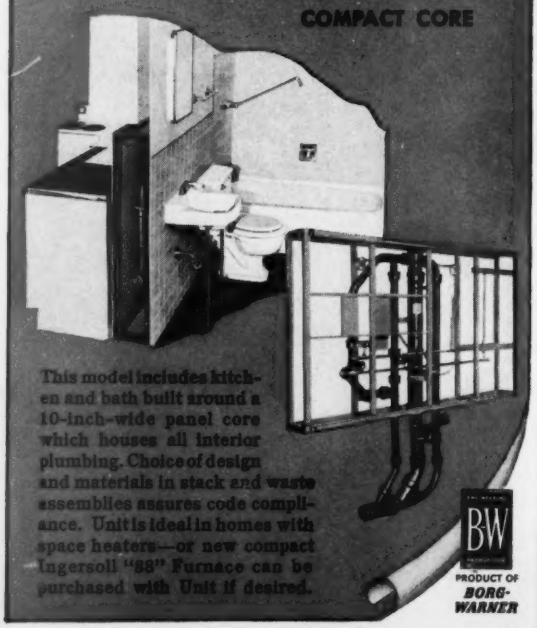


The standard Ingersoll Utility Unit is a single engineered assembly. It includes all the fixtures, appliances, controls and fittings of Kitchen, Bath and 80,000 B.T.U. output furnace—plus water heater, interior plumbing and electrical connections.

Ingersoll
UTILITY UNIT

Ingersoll Utility Unit Division
Borg-Warner Corporation
Dept. BB1, 321 Plymouth Court, Chicago 4, Ill.

NEW INGERSOLL UNIT BUILT AROUND COMPACT CORE



This model includes kitchen and bath built around a 10-inch-wide panel core which houses all interior plumbing. Choice of design and materials in stack and waste assemblies assures code compliance. Unit is ideal in homes with space heaters—or new compact Ingersoll "88" Furnace can be purchased with Unit if desired.

BW
PRODUCT OF
BORG-WARNER

Available Now!

A NEW, COMPLETE LINE OF...

Streamline GLOBE VALVES

FROM THE ORIGINATOR AND MANUFACTURER OF

Streamline SOLDER TYPE Fittings

THE ADVANTAGE OF UNDIVIDED RESPONSIBILITY FROM THE ONE EXPERIENCED SOURCE

Many months of experimentation and tests were conducted on the STREAMLINE Globe Valve before placing it on sale. It incorporates all the fine qualities that a valve of this type should possess—all weaknesses and impractical features have been eliminated. We place it on the market with full confidence that it will measure up to that high standard already enjoyed by STREAMLINE Solder Type Fittings and Copper Pipe.

STREAMLINE Solder Type Valves are made for and intended to be used with STREAMLINE Solder Type Fittings and STREAMLINE Copper Pipe. One is the perfect complement of the other.

The new STREAMLINE Globe Valve incorporates a non-porous, cast bronze body of high tensile strength, machined to close tolerance. The bonnet, stem, and disc holder, are of the same high quality material. The Union Nut is made of a special rod mixture that will withstand wear and tear under severe service conditions. The oval, cast iron wheel is of easy grip, non-heating design.

The valve is of rising stem construction with tough, red fibre disc for firm seating and resistance to high temperatures. It is easily accessible for quick replacement.

STREAMLINE Globe Valves are available in complete range of sizes of ¼" to 2" inclusive in solder ends or female S. P. S.

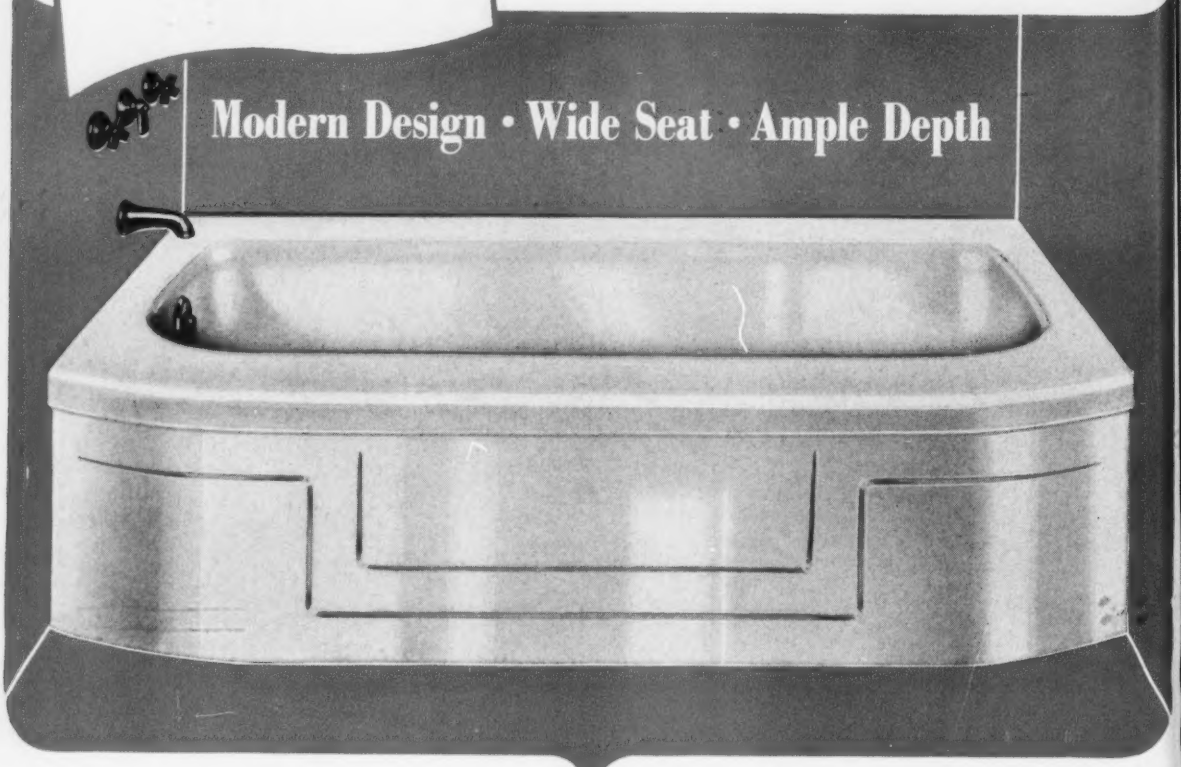
ORDER FROM YOUR JOBBER

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

Announcing the New

AllianceWare
PORCELAIN ON STEEL

BATHTUB



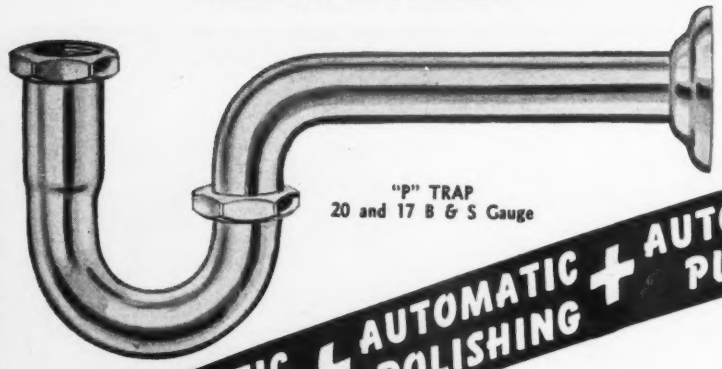
THIS most recent AllianceWare tub—Model BA5—has three important features—(1) an attractive, modern panelled apron which complements any basic design of bathroom decorations; (2) a wide seat as an integral part of the outer rim; and (3) a height of 15½ inches.

All other features of AllianceWare quality—heavy gauge steel but light weight in comparison with cast iron; integral wall guard, and the lustrous, stainproof, porcelain-on-steel surface of all AllianceWare fixtures—are an inherent part of these models. These tubs are available for either right or left hand installations—5 foot recess.

Catalog descriptions giving complete details and dimensions of this AllianceWare tub, Model BA5, will be mailed gladly upon request.

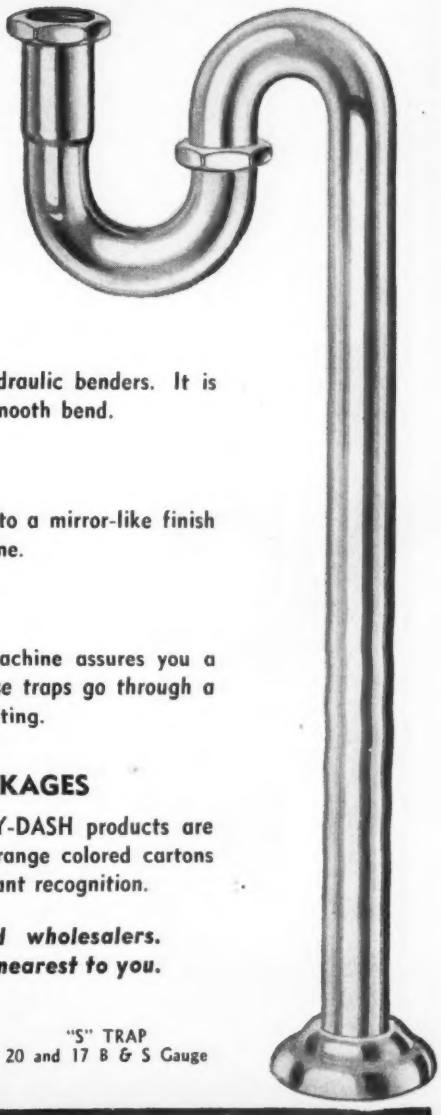
ALLIANCEWARE, INC. • Alliance, Ohio
Bathtubs • Lavatories • Sinks

AllianceWare
PORCELAIN ON STEEL

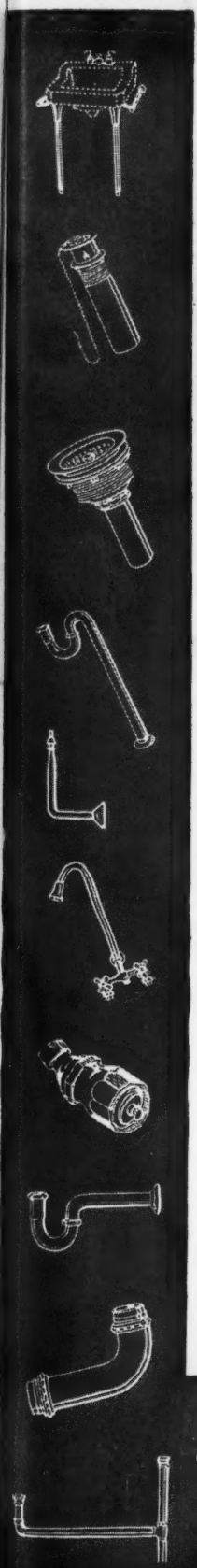


"P" TRAP
20 and 17 B & S Gauge

AUTOMATIC BENDING + AUTOMATIC POLISHING + AUTOMATIC PLATING



"S" TRAP
20 and 17 B & S Gauge



● AUTOMATIC BENDING

Our traps are made with electric hydraulic benders. It is impossible to make anything but a smooth bend.

● AUTOMATIC POLISHING

Our traps are automatically polished to a mirror-like finish on a quadruple header buffing machine.

● AUTOMATIC PLATING

A fully automatic *Udylite* plating machine assures you a gleaming lustrous *chrome finish*. These traps go through a cycle of copper, nickel and chrome plating.

● STRIKING, INDIVIDUAL PACKAGES

The entire quality line of SANITARY-DASH products are now individually packed in striking orange colored cartons . . . for greater display value and instant recognition.

We sell only through recognized wholesalers. Write for name of our Sales Agent nearest to you.

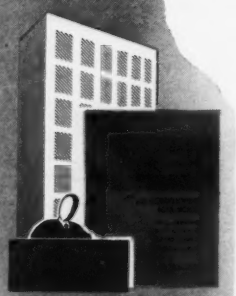
SANITARY-DASH MANUFACTURING CO., INC.

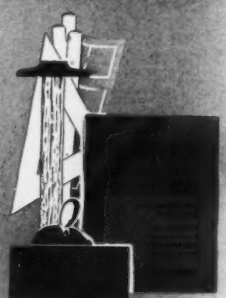
11th STREET and 44th ROAD • LONG ISLAND CITY 1, N. Y.

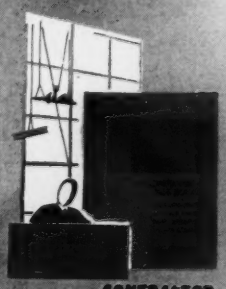
MANUFACTURERS OF TUBULAR BRASS AND PLUMBING GOODS—SHOWER BATH CURTAINS

YOUR Silent Salesman

...at the desks of buyers and specifiers every business day of the year


WHOLESALER-JOBBER


ENGINEER-ARCHITECT


CONTRACTOR

INDUSTRIALS

Manufacturers' product information, whether presented through personal contact or by printed media, can do a 100% selling job only when it is available at the time the buyer or specifier is actively engaged in preparing the order or specification.

Through its select coverage of leading wholesalers, jobbers, consulting and specifying engineers, architects, contractors, dealers and industrials, DOMESTIC ENGINEERING CATALOG DIRECTORY keeps catalog material daily at the desk of these key men responsible for volume purchasing and specifying of products and equipment classified at the right. Product information is always at their fingertips . . . ready for immediate reference at the precise moment an order or specification is being *written*.

For additional details on Annual and Supplement Editions, write direct or consult your advertising agency.

- Heating
- Plumbing
- Air Conditioning
- Insulation
- Water Systems
- Gas Appliances
- Refrigerators
- Kitchens and Cabinets
- Domestic Laundry Equipment
- Fans, Blowers
- Stokers
- Oil Burners
- Frozen Food Cabinets
- Electric Appliances
- Specialties
- Accessories

RESERVE SPACE NOW FOR 1949 ANNUAL EDITION

CONSULT YOUR ADVERTISING AGENCY...

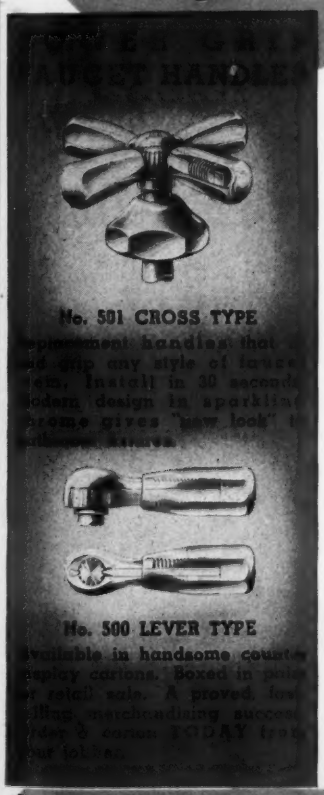
DOMESTIC ENGINEERING CATALOG DIRECTORY

1801 PRAIRIE AVENUE
CHICAGO 16, ILLINOIS

TO MEET THE *Growing Replacement Demand*

Crampton's ARISTOCRAT TOILET SEAT HINGE

Here's a handsome replacement for the corroded, broken, unsanitary hinges that deface so many American homes. Yes, it's an improved, sturdier model — beautifully finished in Crampton's smooth, gleaming chrome — with a new design that assures extra shock-proof strength for hard service. There's a big, profitable demand from home-owners, apartments, institutions. Order TODAY — get your share of this business!



No. 501 CROSS TYPE

No. 500 LEVER TYPE

No. 7032

PACKED for resale in individual boxes, complete with rubber and steel washers, nuts, and taped loss-proof screws.

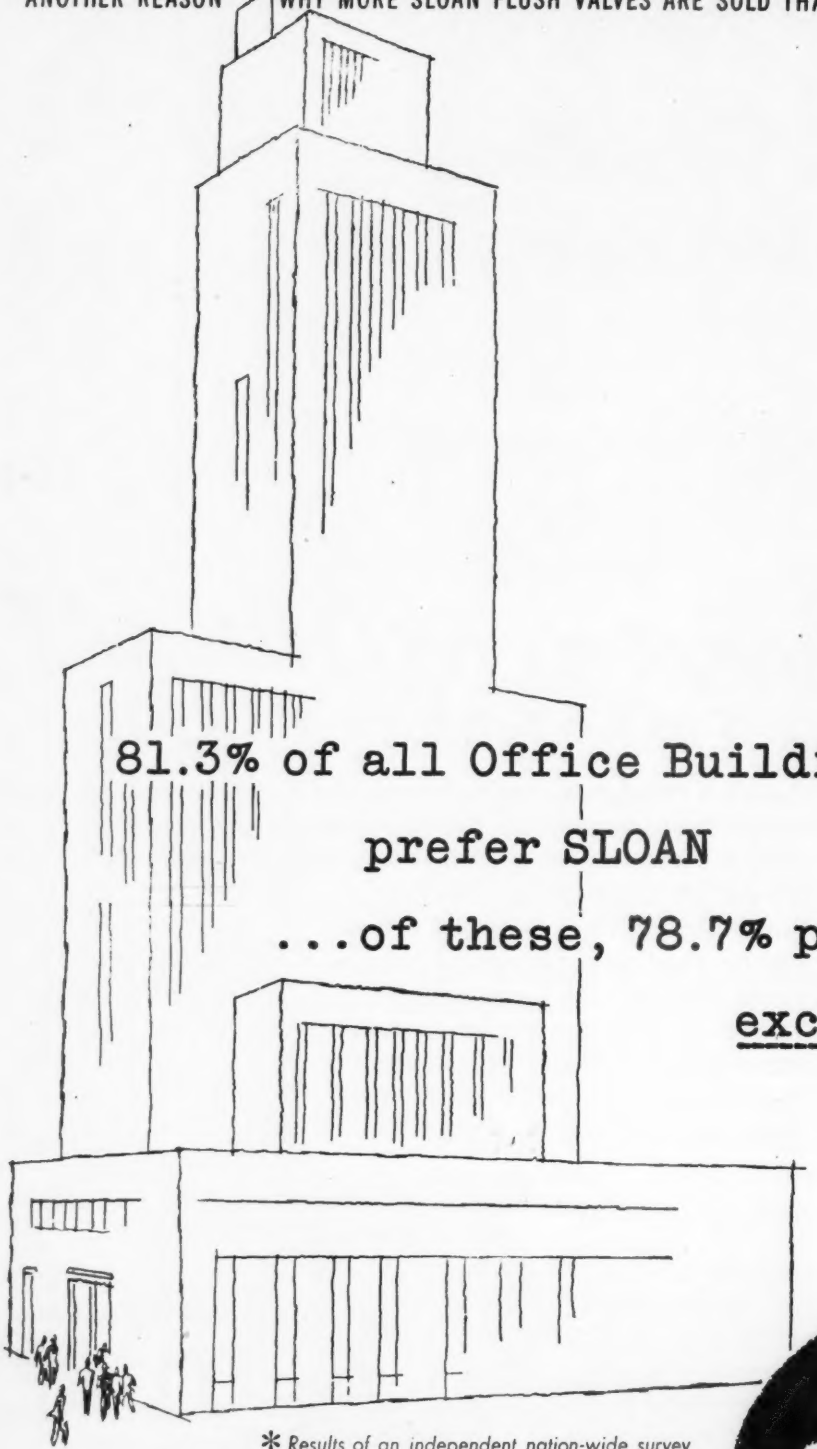
SHIPPED 20 to the carton. Shipping weight 18 lbs. No broken lots.

ASK YOUR JOBBER chances are, he has them!

CRAMPTON *Manufacturing Company*

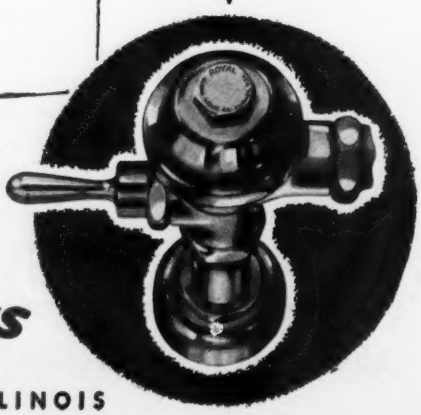
QUALITY PLUMBING HARDWARE **HOLLAND**, *Michigan*

ANOTHER REASON WHY MORE SLOAN FLUSH VALVES ARE SOLD THAN ALL OTHER MAKES COMBINED



81.3% of all Office Building Managers* prefer SLOAN

...of these, 78.7% prefer SLOAN exclusively



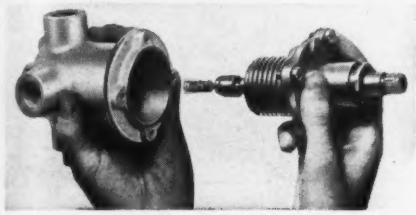
* *Results of an independent nation-wide survey (July, 1948) among 1168 Managers of Office Buildings of ten or more stories, 21% of whom responded*

SLOAN *Flush* VALVES

SLOAN VALVE COMPANY • CHICAGO • ILLINOIS

Bathers can really relax and enjoy a Powers regulated shower. No danger of scalding. No unexpected temperature changes

THE KEY TO SAFE SHOWERS

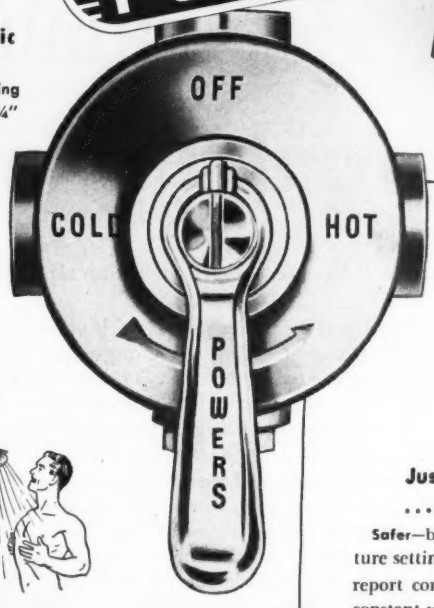


ONLY ONE MOVING PART—SIMPLICITY and durable construction insure many years of efficient carefree operation. Mixer body is made of bronze and parts subject to wear have a hard chromium finish.

POWERS

TYPE H Thermostatic MIXER

For exposed piping
Dial diameter 3¼"



For modern showers the Safety of Powers Mixers is indispensable

Safest for use by children, the aged or infirm.

Thermostatic SHOWER MIXERS

they are SAFE against scalding caused by

1 PRESSURE *or* 2 TEMPERATURE

fluctuations in water supply lines

Just what every shower user has always wanted!
...the perfect showers assured by POWERS mixers.

Safer—because of their quick acting response to any change in temperature setting, pressure or temperature variations in water supply lines. Users report control within ½°F. **Greater Comfort**—shower temperature remains constant wherever set. No jumpy temperatures. **More Economical**—POWERS thermostatic mixers promptly deliver showers at just the right temperature . . . no waste of time, hot and cold water.

For new installations or when modernizing obsolete showers . . . play safe, use Powers type H thermostatic shower mixers. May we send Circular H-48?

CHICAGO 14, ILL., 2720 Greenview Ave. • NEW YORK 17, N. Y., 231 E. 46th St.
LOS ANGELES 5, CAL., 1808 W. Eighth St. • TORONTO, ONT., 195 Spadina Ave.

49HK

THE POWERS REGULATOR CO.
OFFICES IN 50 CITIES • SEE YOUR PHONE BOOK
*Over **55** Years of Water Temperature Control*

Wagner STEEL-FRAME Motors

Proved

by years of service!

quiet... dependable... trouble-free!

Since 1930, when Wagner started manufacturing steel-frame drip-proof motors, they have been *proved*—by years of hard usage in industry after industry.

Today this time-tested design is available in polyphase motors through 326 frame size. The motor frames are formed of heavy rolled steel, shaped to accurately center the stator core and to provide passages for adequate ventilation. An auxiliary fan draws in air through the openings in the front endplate, forces it through these passages and out through the endplate openings on the drive end. Heat is effectively carried off from all parts of the motor.

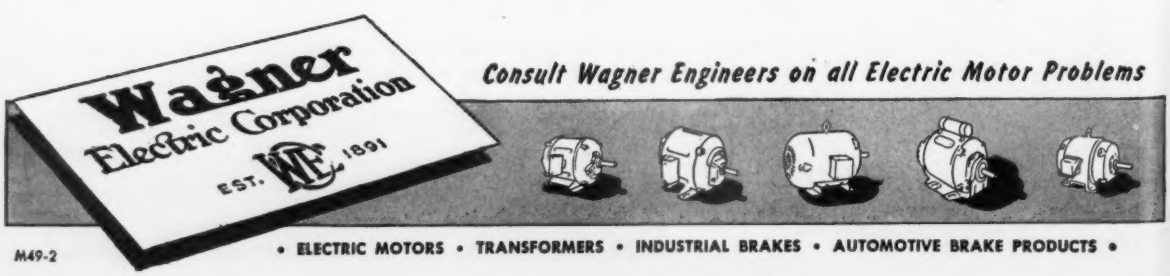
These motors are available with either sleeve or ball bearings. They are completely drip-proof when mounted in the normal horizontal position, and by rotating the endplates are still drip-proof in the sidewall or ceiling horizontal positions.

Bulletins give full information on the complete line of Wagner Motors. Twenty-nine branches, located in principal cities, are ready to assist you whenever you have a motor problem. In addition, almost 500 authorized motor repair shops provide speedy, nationwide service facilities.

Wagner Electric Corporation

6401 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.

Consult Wagner Engineers on all Electric Motor Problems

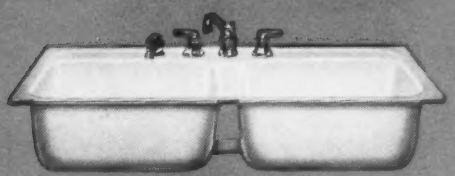


M49-2

• ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE PRODUCTS •

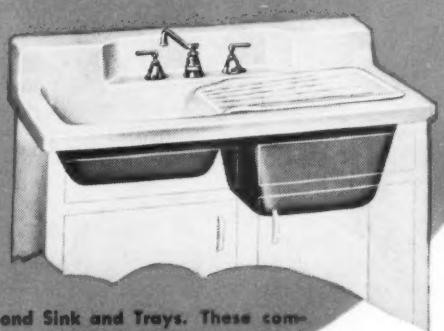
Richmond's at home in any Kitchen!

FOR ECONOMY INSTALLATIONS—Richmond Wall Hung Sinks. The Sewanee, plate No. 1554, illustrated here, is a good-looking, roll rim, single drainboard sink. Drilled for combination fittings and large strainer. Right hand drainboard (plate No. 1556) and left hand drainboard (plate No. 1554), both 42" x 22".



FOR COUNTER-TOP SINKS—Richmond Flat Rim Sinks. Illustrated is the Shelton, plate No. 2115. A double compartment, flat rim sink—drilled for supply fittings. Sizes 32" x 21" and 42" x 21".

FOR BASE CABINETS—Richmond ledge-back sinks with single or double drainboards. Drilled for deck-type supply fittings with hose and spray. Model shown is the Seville, plate No. 1535, available in two sizes; 54" x 25" and 60" x 25".



FOR CLOSE QUARTERS—Richmond Sink and Trays. These compact combinations are ideal for restricted space. Drilled for deck type swinging-spout supply fittings. Laundry tray compartment a full 13" deep. Two sizes; 42" x 25" or 50" x 25".

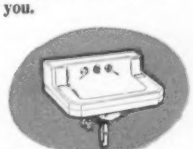
Whether you specify or install—Richmond Enameled Cast Iron Sinks are a credit to any job!

Whiter-white, acid resisting enamel—clean-cut modern design—plus rugged cast-iron assure certain satisfaction to your customers . . . This complete Richmond sink line ranges from a 42-inch sink, with right or left drainboard—for small installations, up to the double sink, double compartment 72" Serbin for the finest kitchens . . . No matter what your sink problems are, Richmond has the answer for you.

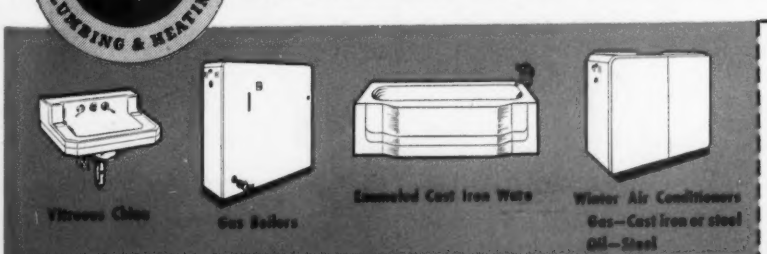
RICHMOND PLUMBING & HEATING

RICHMOND

RICHMOND RADIATOR CO.—AFFILIATE OF REYNOLDS METALS CO.



Vitreous China at its best is embodied in the Richmond line of fine lavatories.



See your wholesaler or MAIL COUPON TODAY DE-1

Richmond Radiator Company
19 East 47th Street, New York 17, N. Y.

I am interested in further information on the Richmond Enameled Cast Iron sinks. Please send me full details. No obligations, of course.

Name.....

Company.....

Address.....

2 BEAUTIFUL SPEAKMAN

Famous-Original

The amazing SPEAKMAN ANYSTREAM SHOWER HEAD is the *one* and *only* shower head with all these exclusive features: *Complete Spray Selection . . . Automatically Self-Cleaning . . . Prevents After-Drip in "Flood" position . . . No Holes to Get Clogged . . . Adjustable Swivel Joint . . . Gives Normal Shower at Low Pressure . . . Easy to Install . . . Fits any Shower . . . Dependable—no call backs!*

A turn of the lever gives:

NEEDLE SPRAY
for stimulation

NORMAL SPRAY
for relaxation

FLOOD SPRAY
for no-splash rinse

NEVER THIS
It's self-cleaning!

MODELS *now available*

Anystream SHOWER HEAD

MODEL NO. 1

S-2250-Model 1 with integral ball joint and concealed volume control. ½" size.

A bathroom luxury that can't be duplicated . . . the latest word in shower design and beauty plus the amazing Anystream Shower Head Features.

MODEL NO. 2
(Pat. Pending)

S-2250-Model 2 with integral ball joint. ½" size.

A smaller, lighter, more compact Anystream Shower Head for homes, apartments, and institutions where cost is an important factor.

"Established in 1869"

SPEAKMAN

SHOWERS AND FIXTURES

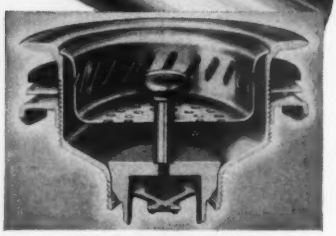
SPEAKMAN COMPANY, WILMINGTON 99, DELAWARE

There is a fine Scovill fitting for every sink or waste tray job

Scovill Crumcup Strainer

(No. 1558-1568 illustrated.) Tailpiece 1¼" or 1½" Wrought plug 2½" long under flange. Shank threaded 1½" IPS. Diameter of flange 4½". Heavy gauge brass finished in polished chrome.

OPEN POSITION



CLOSED POSITION

Stopper seats perfectly when down. As it is raised with a slight turn, a guide slides it into position and grooved legs hold it to the crossbar. No centrifugal swirl of water can unseat it. Positively open or closed. Extra wide space between basket and sides. Crumcup and stopper one unit — easily removed for cleaning.

Match Good Workmanship with Scovill Quality—It Pays

THE SCOVILL Crumcup Strainer makes friends wherever it is installed. It does its job well. It's made to stay positively open or closed. It drains quickly due to the large water-way.

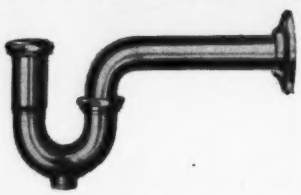
For any sink or waste tray job, there are other Scovill quality fittings to match your good workmanship.

For instance, the famous "P" trap. It is fitted with standard pipe-size brass nuts. It has a leak-proof joint with a double wall of solder inserted at the U-shaped, cleanout collar; and the Scovill *exclusive pre-fitted* cone-shaped lead washer insures a leak-proof connection with no repacking no matter how many times the joint is broken and remade.

Note other fittings at the right. Where lasting customer satisfaction is important, make your sink and waste tray jobs Scovill throughout.

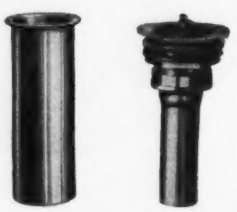
Sink and Wash Tray Waste Combination No. J-410, consisting of Twin Elbow No. 3057 (cast), No. 2386—11¾" Elbow Waste Tube 1½" OD (2) 25" centers.

Sink and Wash Tray Combination No. J-449, consisting of No. 3054 Tee, 1½" OD Tailpiece, No. 2386—23¾" Elbow Tube 1½" OD. 25" centers (also 30" centers No. J-458).



Brass Tube "P" Trap No. 1607—1¼", No. 1709—1½" Wall of solder at clean-out insures against leaks; lead cone washer at joint—no repacking, leak-proof.

Sink Trap Wrought Inlet Bend—Cast Brass IPS Elbow. No. 1901—1¼"—1¼" IPS outlet; No. 1921—1½"—1½" IPS outlet. Lead cone washer at joint.



Tailpiece 1½" OD. Lengths 4", 6", 8", 10", 12". **Wrought Plug** for Enameled Trays for 2" drilling, 3" diameter top; with tailpiece 1¼" or 1½" OD.

Wide Flange Strainers For Enameled Sinks—3½" or 4" drilling. Diameter of flange 4½". 1¼" or 1½" OD tailpiece.

SCOVILL

Manufacturing Company

WATERVILLE DIVISION, WATERVILLE 48, CONNECTICUT

The INDIANA BRASS Co., Inc.

FRANKFORT, INDIANA

Makers of CLOSET TANK FITTINGS and PLUMBING SPECIALTIES

Established 1911

★

INDIVIDUAL SECURITY INSURES FREEDOM AND LIBERTY. SOCIAL SECURITY LEADS TO REGIMENTATION AND LOSS OF LIBERTY.

John A. Johnson

PRESIDENT

INBRACO

The BIG BOY for BIG JOBS

" " "
1¼-1½-2
Pipe Sizes

TYPE E-41
Pressure
Reducing
Valve

Large buildings in high water pressure areas need reducing valves to bring the pressures under control.

The ALL-BRONZE CASH-ACME Type E-41 Pressure Reducing and Regulating Valve was designed to do this job. Its large passageways and yoke type construction give ample capacity for apartment buildings and large homes. The E-41's SCREWED-IN CHROME SEAT makes maintenance easy while its Hycar seat and Neoprene diaphragm will reduce maintenance to a minimum. Deliveries are prompt.

●

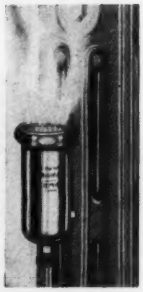
Write for your free copy of our new 1948 Catalog for complete details on CASH-ACME Products.

Sold ONLY through plumbing and heating wholesalers. See them . . . ask for—

CASH-ACME *Automatic Valves*

A.W. CASH VALVE MANUFACTURING CORPORATION

6661 EAST WABASH AVENUE DECATUR, ILLINOIS, U. S. A.



No. 95 AUTO-VENT installed on low-pressure (gravity type) steam radiator.

AUTOMATIC

HUMIDIFIER

FOR STEAM RADIATORS

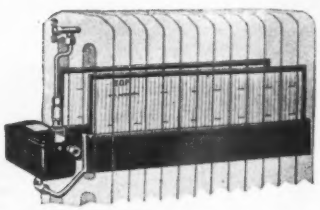
Provides ample humidity for 2,000 cu. ft. space at one lb. steam pressure. Widely used in homes, apartments, offices, factories, etc. Easily regulated. Quiet in operation. To install, merely remove air valve and replace with AUTO-VENT (which vents as it humidifies).

AUTOMATIC

HUMIDIFIER

FOR HOT WATER RADIATORS

Equipped with patented copper bound, corrugated evaporators. Vaporizes up to 1½ gals. daily at hot water radiator temperature of 130° —20% more on steam radiators. Supply can be taken directly from radiator or nearest water line. Three sizes: 18", 24" and 36" lengths.



No. 34 Automatic Humidifier installed on hot water radiator. Furnished complete; easily installed.

Come to HEADQUARTERS!

Maid-O'-Mist products are *good* products . . . scientifically developed; conscientiously built; attractively priced. Recommend them to your customers—use them yourself—*with confidence*. If your jobber can't supply you, write us.

SEE OUR EXHIBIT— BOOTH 1015

9th Heating & Ventilating Exposition at International Amphitheatre, Chicago — January 24 to 28.

MAID-O'-MIST Inc.

HEATING SPECIALTIES

AUTOMATIC HUMIDIFIERS

FEED VALVE ASSEMBLY

No. 5900 F

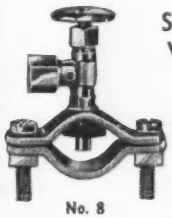
National Plumbing Laboratory Approved Against Back-Siphonage

Complete unit for converting any hand-fed humidifier into an automatic job. Fully adjustable as to water line and pressure. Corrosion-resisting brass and copper construction. Furnished with necessary fittings and complete installation instructions.

NEEDLE VALVE

For ⅛" I. P. inlet and ¼" O. D. copper tube outlet.

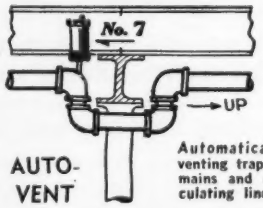
No. 816



No. 8

SADDLE VALVE

for ½" and ¾" pipe—brass forging with insert to fit ¼" hole; wheel handle. For ¼" O. D. tube.



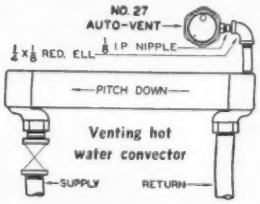
AUTO-VENT

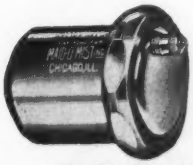
Automatically venting trapped mains and circulating lines.

AIR ELIMINATOR

No. 7

Sure-cure automatic valve for venting air pockets and air traps in hot water heating lines, unit heaters, convectors, baseboards, cold water lines, coils, tanks, etc. Pressures to 75 lbs.





No. 27

AUTO-VENT

AIR ELIMINATOR

Same type of automatic valve as No. 7 (at left) but for horizontal mounting. Used principally for venting hot water convectors or free standing radiators. For pressures to 50 lbs. Promotes more efficient heating; eliminates air trouble.

Furnished either horizontally or vertically mounted as shown.

No. 53

No. 52

WATER LEVEL CONTROL VALVES

Ideal for use in humidifiers, air conditioners, evaporative coolers, air washers, etc. Water line raised or lowered easily. Take exceptionally small space. Supply equipped for ¼" O. D. copper tube connection. Quickly installed. Capacities from 1 qt. to 1½ gals per min. Pressures to 125 lbs.

MAID-O'-MIST, INC. . . 3219 N. PULASKI RD. . . CHICAGO 41, ILLINOIS

L-M

fittings
and tubing
match to a
" "

no job is any better than the fitting you use

Lewin-Mathes Copper and Brass Fittings are produced with the same painstaking precision that has made Lewin-Mathes Tubing so dependable. Every fitting is **critically** inspected and rejected if it does not measure up to our rigid standards of quality.

Standardize on Lewin-Mathes Fittings and Tubing . . . they're perfect teammates that belong on **your** team.

LEWIN MATHES

LEWIN-MATHES COMPANY · · SAINT LOUIS, MISSOURI

BRASS PLUMBING FIXTURES BY *Harcraft*

Outstanding for

MODERN DESIGN • PRECISION ASSEMBLY

• SPARKLING CHROME FINISH • LONG TROUBLE-FREE LIFE

B-3
SHOWER HEAD WITH ARM AND FLANGE

A-10
CENTER SET LAVATORY FIXTURE—4" CENTER—WITH POP-UP

A-9
LEDGE TYPE SINK FIXTURE—CONCEALED—8" CENTER—WITH HOSE & SPRAY

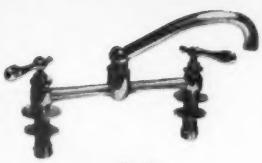
B-5
DIVERTER TUB & SHOWER FIXTURE—8" AND 11" CENTERS—WITH SPOUT

B-20
OVER RIM TUB FILLER—8" CENTER—WITH SPOUT

Harcraft Plumbing Fixtures are turned from solid brass bar stock to exacting specifications and silver welded. Harcraft fixtures are superior to cast brass, eliminating bad castings, pour holes, thin walls and misaligniments. All assemblies factory pressure tested.

C-10 THRU **C-38**
STRAIGHT AND ANGLE LAVATORY STOPS—ALL SIZES

A-2
WALL TYPE SINK FIXTURE—8" CENTER—WITH ANTI-SPLASH STRAINER OR AERATOR



A-5
DECK TYPE SINK FIXTURE—8" CENTER—WITH ANTI-SPLASH STRAINER OR AERATOR

A-20
BASIN FAUCET, WITH CROSS HANDLE

Harcraft

Plumbing Fixtures

SOLD EXCLUSIVELY THROUGH WHOLESALERS OF PLUMBING SUPPLIES

HARVEY MACHINE CO., INC.
19200 S. Western Avenue
Torrance, Calif.

Kohler Fixtures deserve

KOHLER BRASS FITTINGS

•

Sell your customers the satisfaction of first quality throughout

THE reputation for outstanding satisfaction which Kohler chromium plated brass fittings have achieved is the result of long experience and care in designing, engineering and manufacturing.

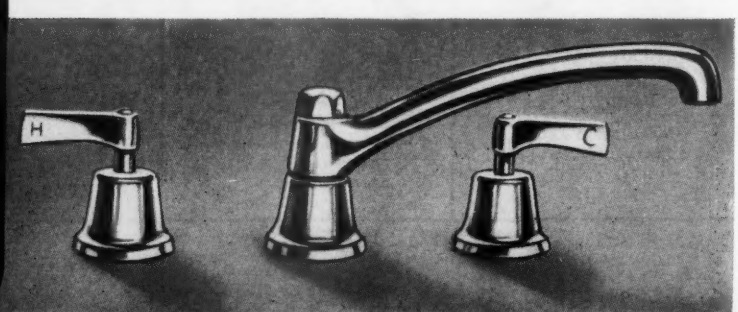
All fittings are made from carefully-selected, thoroughly-tested raw materials. Bodies are full size, sturdy, and cast with large waterways free from obstructions. Threads are deep, cleanly cut; and double action for quick opening and closing. Valve seats are removable for easy, economical maintenance. Smooth castings assure a lustrous, even surface, chromium plated over a preliminary coating of nickel. Completed fittings are tested under water pressure for performance.

Kohler fittings match Kohler fixtures in style and proportion —a fact your customers will appreciate. Kohler quality, recognized by home owners everywhere, is a 76-year-old tradition. Kohler Co., Dept. 24-E, Kohler, Wisconsin. Established 1873.

K-7025—Kohler Triton Shower and Bath Fitting, with Niedecken Mixer and Pop-up drain.

Upper left—K-8005—Kohler Centra Lavatory Fitting with Pop-up Drain.

Below—K-8601—Edgewater Counter top Sink Fitting with Swing Spout.

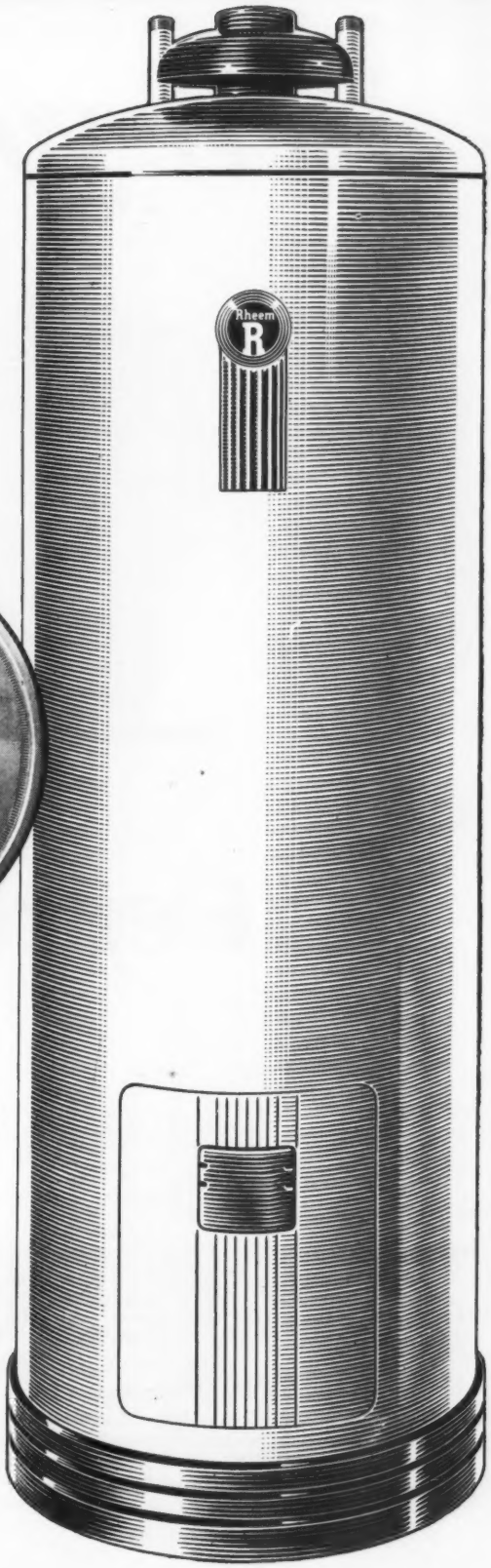


KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS

THE WORLD'S MOST RELIABLE WATER HEATER

by the world's largest maker



The Series 41 featuring the exclusive Rheem Process Tank, Pat. No. 2444833. The Grayson Unitrol. Streamlined flow grid burner. Fiberglas insulation. Decorator styling.

All sizes, all models, all automatic. For all gases, oil and electricity. Approved by Good Housekeeping, American Gas Association, Underwriters' Laboratories, Inc. Fully guaranteed by the maker.

It's Good Business to Rely on Rheem

RHEEM MANUFACTURING COMPANY, 570 LEXINGTON AVENUE, NEW YORK 22, N. Y.

Were you "in" on the

1,00

Electric Water Heaters

For the past two years, the sales volume of Storage Type Electric Water Heaters has been over 1,000,000 units a year. This represents more than $126,000,000 annual sales volume, and that's not peanuts in anybody's language.

If you didn't promote and sell Electric Water Heaters, how much of that volume did *you* miss?

Proof that Electric Water Heaters are what people want

Not only actual sales volume but surveys—by such magazines as McCall's and Successful Farming, by the Office of Civilian Requirements, and NEMA—show the rapidly increasing demand for modern Automatic Electric Water Heaters.

Here's WHY people want Electric Water Heaters

This trend is growing daily as people see for themselves the many advantages of the modern Automatic Electric Water Heater:

(1) AUTOMATIC (continuous hot water, no attention); (2) CLEAN (smokeless, sootless); (3) DEPENDABLE AND TROUBLE-FREE (as electric light); (4) ECONOMICAL (fully insulated storage, short hot water lines); (5) SAFE (all electric, dependable temperature control); (6) FLEXIBLE (can be installed anywhere, even in living quarters; no flue or vent).

Here's why dealers like to sell Electric Water Heaters

Not only do people want to *buy* Electric Water Heaters, but dealers like to sell them because of:

• ***Larger Individual Sales.*** One Electric Water Heater represents as much *dollar* volume as two or three smaller appliances. Each sale also represents . . .

• ***More Profits for You.*** There is a full margin of profit on the sale of Electric Water Heaters. And there is also the added advantage of . . .

• ***Pleased Customers*** who come back to you for other electrical appliances and services.

That's why you're missing plenty of sales and plenty of profits unless you stock and sell modern Automatic Electric Water Heaters!

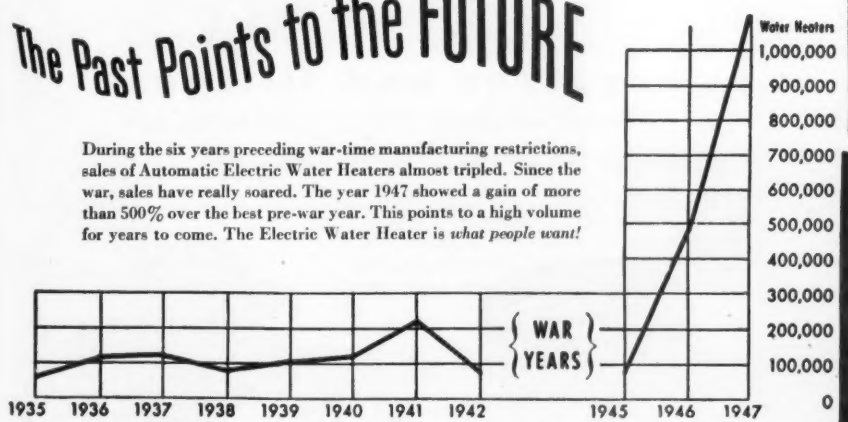
ELECTRIC WATER HEATER SECTION,
155 East 44th Street,
BAUER • BRYANT • FOWLER • FRIGIDAIRE • GENERAL ELECTRIC • NORGE • PEMCO • REX • RHEEM • SELECTRIC • SEPCO • SMITHWAY

0,000

that were sold last year?

The Past Points to the FUTURE

During the six years preceding war-time manufacturing restrictions, sales of Automatic Electric Water Heaters almost tripled. Since the war, sales have really soared. The year 1947 showed a gain of more than 500% over the best pre-war year. This points to a high volume for years to come. The Electric Water Heater is *what people want!*

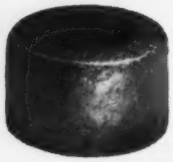


Source: January, 1948 Statistical Issue, Electrical Merchandising Industry Figures developed from Statistics compiled by NEMA.

National Electrical Manufacturers Association
New York 17, N. Y.
HOTPOINT • HOTSTREAM • JOHN WOOD • KELVINATOR • MERTLAND • MONARCH
SUNBEAU • THERMOGRAY • TOASTMASTER • UNIVERSAL • WESIX • WESTINGHOUSE

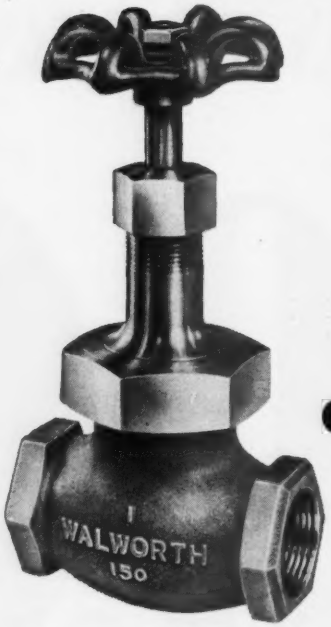
Toothed Lock Washer: Prevents loss of stem nut due to vibration, thereby holding the handwheel securely.

Newly Designed Handwheel: Air-cooled, finger grip handwheel affords sure grip even with greasy gloves.



Improved Packing: Molded packing of lubricated asbestos reinforced with copper wire. Suitable for practically every service. Valves can be repacked under pressure.

WALWORTH



IMPROVED

No. 95

BRONZE

GLOBE VALVE

also available in Angle Type (No. 96)

The service ratings of the Walworth No. 95 are 150 pounds per square inch steam at 500F, and 300 pounds per square inch non-shock cold water, oil, and gas. In the manufacture of this quality bronze valve, more than 47 gages are used in machining parts to micrometric accuracy, thus insuring interchangeability of parts. For further information see your local Walworth distributor, or write: Walworth Company, 60 East 42nd St., New York 17, N. Y.

note these 7 Great Features

Hexagonal Union Bonnet Connection: Eliminates any chance of distortion or leakage even though valve is repeatedly taken apart and assembled.

WALWORTH

valves and fittings

60 EAST 42nd STREET NEW YORK 17, N. Y.

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

New Cylindrical Disc Holder: The design of the top portion of the disc holder keeps the disc accurately guided under all operating conditions.

Renewable Asbestos Disc: This disc is suitable for steam up to 500F and is resistant to oil, gasoline, and many chemicals at atmospheric temperatures. Discs for special services are available.

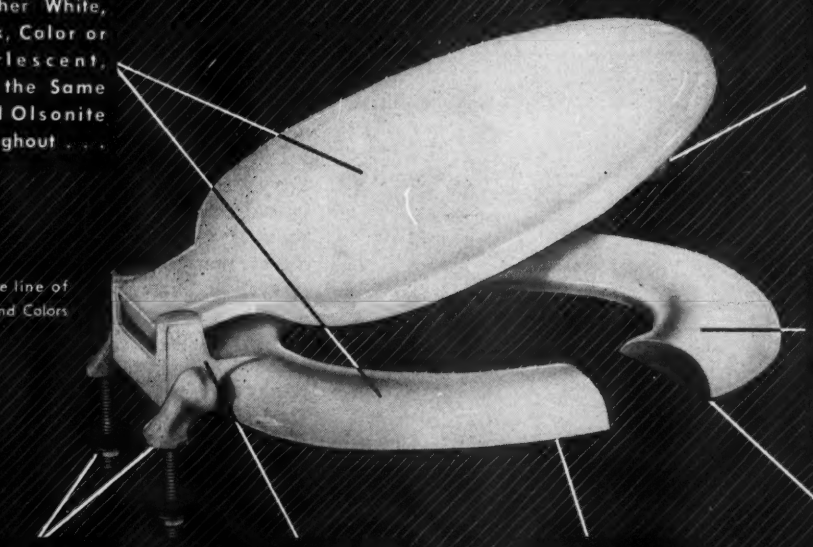
Extra Strong Body: Made of Composition M (ASTM B61) bronze thick enough to provide a high safety factor. Valves undergo hydrostatic shell test of 450 psi.

ONLY Olsonite SEATS
Have All These Selling Features!

Whether White, Black, Color or Pearlescent, It Is the Same Solid Olsonite Throughout . . .

Long Life, Stain-proof Bumpers Used On All Olsonite Seats...

Complete line of Models and Colors



Scientifically Designed In Both Proportion and Contour with Smooth Curves and Edges . .

When Installed, No Metal Fastenings Show — Brass Metal-Hinge Posts are Smartly Olsonite Covered . . .

Exclusive New, Patented Olsonite Hinge Design

Absolutely Flat Under-Surface — Avoids Dirt and Germ Deposits!

Beautiful, Lustrous, Olsonite ALL THE WAY THROUGH!

NOT CONCAVE — NOT CORE-COVERED — NOT HOLLOW — BUT LUSTROUS OLSONITE ALL THE WAY THROUGH!

Lowest-Priced Seat of This Quality on the Market — and Guaranteed a Lifetime!

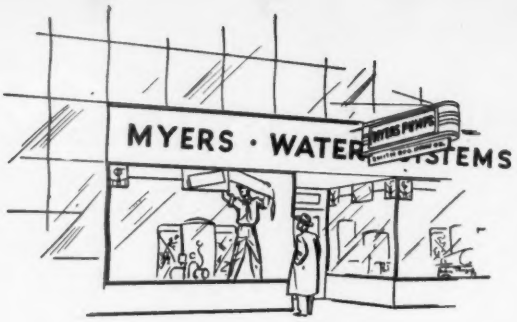
Olsonite Seats are far superior to ordinary wood, rubber, sheet-covered, or plastic-coated seats . . . and are far greater values! They won't crack, chip, peel, stain, or lose luster! Non-inflammable! No exposed metal. (Sold only through authorized plumbing and heating jobbers to Master Plumbers.) Contact your local jobber today. For full information write Olsonite Plastics Division.

Olsonite PLASTICS DIVISION

DIVISION OF SWEDISH CRUCIBLE STEEL COMPANY, DETROIT 11, MICH. (8561 BUTLER AVE.)

Olsonite SEATS OF SOLID OLSONITE

To keep things humming for Myers Dealers



The sign of a good businessman

Millions of Myers advertising messages like these will be working for Myers Dealers every day and every week in 1949 — delivering factual and interesting information about Myers products, and telling readers that *"THE MYERS DEALER IS THE MAN TO SEE."*

When you add to this powerful national influence the expanded production facilities at the Myers factories and the 78-year reputation for quality that Myers alone enjoys, you can readily understand why you, and every Myers Dealer, has an unprecedented opportunity this year.

And your sense of good advertising will direct you to take full advantage of this wonderful Myers support by identifying your business well with Myers signs and displays, and by advertising locally on a planned program to tell your prospects and customers that *YOU ARE THE MAN WHO HANDLES MYERS PRODUCTS.*

Myers National Advertising for Water Systems and Sprayers for 1949 comprises 70 farm, home and service magazines and totals 145,478,552 selling messages.

THE F. E. MYERS & BRO. CO.

Dept. P44, Ashland, Ohio

water systems • pumps • sprayers • hay unloading tools

Jenkins PRACTICAL PIPING LAYOUTS 39

How to plan a

HOT WATER CIRCULATION LOOP

To prevent water waste, many local codes make it mandatory to install a Hot Water Circulation Loop in buildings over 4 stories high. This type installation supplies hot water and maintains it at the proper temperature throughout the system.

A hot water tank fed by a roof tank is shown here, but where city pressure is sufficient, the hot water tank can be supplied directly from the city main. In this system, hot water goes up the dead riser to the horizontal main located above the highest hot water outlet. Outlets are supplied from down feeders joined at the bottom and tied into the hot water tank inlet.

For efficient and economical operation, the hot water tank is maintained at a temperature higher than is required at the outlets. Cold water enters through a thermostatically controlled mixing valve and blends the extremely hot water to the required temperature.

Consultation with accredited piping engineers and contractors is recommended when planning any major piping installation. Copies of Layout No. 39, enlarged, with additional information, will be sent on request. Just mail the coupon.

A CHOICE OF OVER 500 VALVES

To save time, to simplify planning, to get all the advantages of Jenkins specialized valve engineering experience, select all the valves you need from the Jenkins Catalog. It's your best assurance of *lowest cost in the long run.*

Jenkins Bros., 80 White Street, New York 13; Bridgeport, Conn.; Atlanta; Boston; Philadelphia; Chicago; San Francisco. Jenkins Bros., Ltd., Montreal.

LOOK FOR THIS JENKINS DIAMOND MARK
Since Jenkins Bros 1864

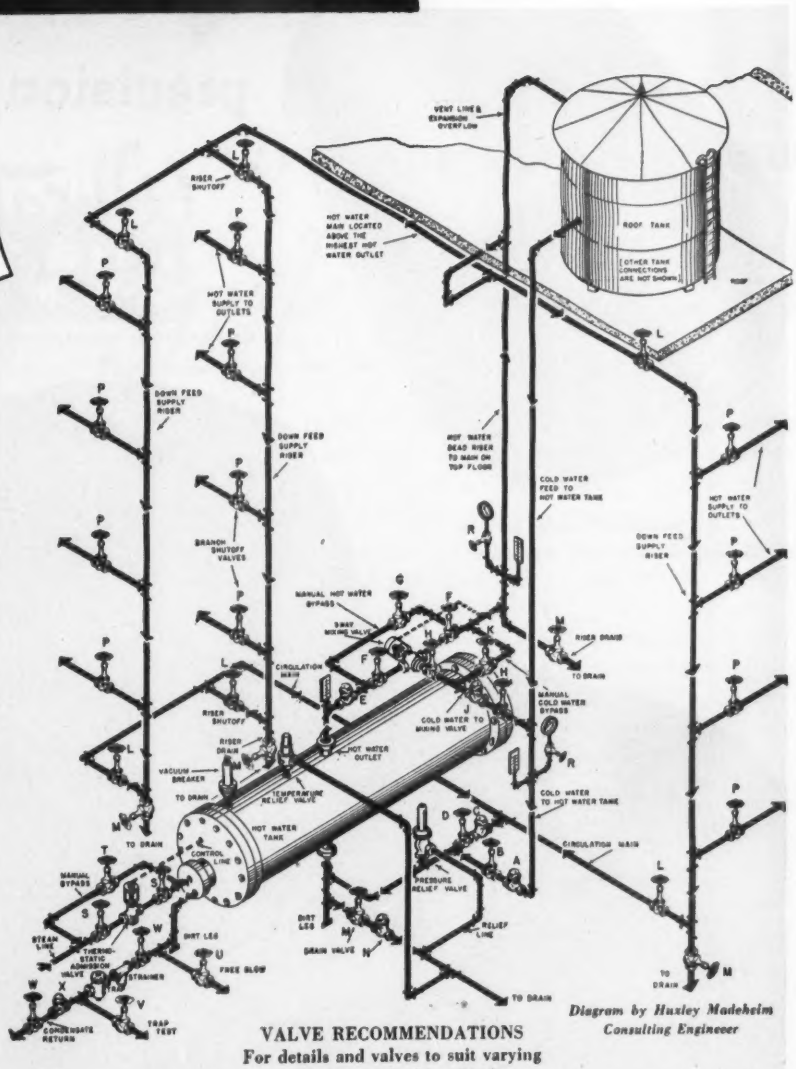


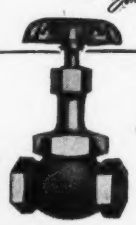
Diagram by Huxley Madeheim Consulting Engineer

VALVE RECOMMENDATIONS

For details and valves to suit varying conditions see Jenkins Catalog

Code	Quan.	Jenkins Valve	Service
A	1	Fig. 352 Bronze Check	Prevent Cold Water Backflow
B	1	Fig. 47 Bronze Gate	Cold Water Shutoff
C	1	Fig. 352 Bronze Check	Prevent Hot Water Backflow
D	1	Fig. 47 Bronze Gate	Hot Water Shutoff
E	1	Fig. 352 Bronze Check	Prevent Hot Water Backflow
F	2	Fig. 47 Bronze Gate	Modulating Valve Shutoff
G	1	Fig. 106-A Bronze Globe	Manual ByPass
H	2	Fig. 47 Bronze Gate	Cold Water Shutoff
J	1	Fig. 352 Bronze Check	Prevent Cold Water Backflow
K	1	Fig. 106-A Bronze Globe	Manual ByPass

Code	Quan.	Jenkins Valve	Service
L	6	Fig. 47 Bronze Gate	Riser Segregation Valve
M	5	Fig. 106-A Bronze Globe	Riser Drains
N	1	Fig. 352 Bronze Check	Prevent Drain Backflow
P	12	Fig. 47 Bronze Gate	Branch Shutoffs
R	2	Fig. 743G Bronze Needle	Pressure Gage Control
S	2	Fig. 47 Bronze Gate	Thermostatic Valve Shutoff
T	1	Fig. 956 Bronze Globe	Thermostatic ByPass
U	1	Fig. 106-A Bronze Globe	Free Blow
V	1	Fig. 106-A Bronze Globe	Trap Test
W	2	Fig. 47 Bronze Gate	Trap Shutoff
X	1	Fig. 92 Bronze Check	Prevent Condensate Backflow



JENKINS VALVES

For every Industrial, Engineering, Marine, Plumbing-Heating Service . . . in Bronze, Iron, Cast Steel, and Corrosion-resisting Alloys . . . 125 to 600 lbs. pressure.

Sold Through Reliable Industrial Distributors Everywhere

JENKINS BROS., 80 White Street, New York 13, N. Y.
Please send me a reprint of Piping Layout No. 39.

Name .....
Company .....
Address .....
.....

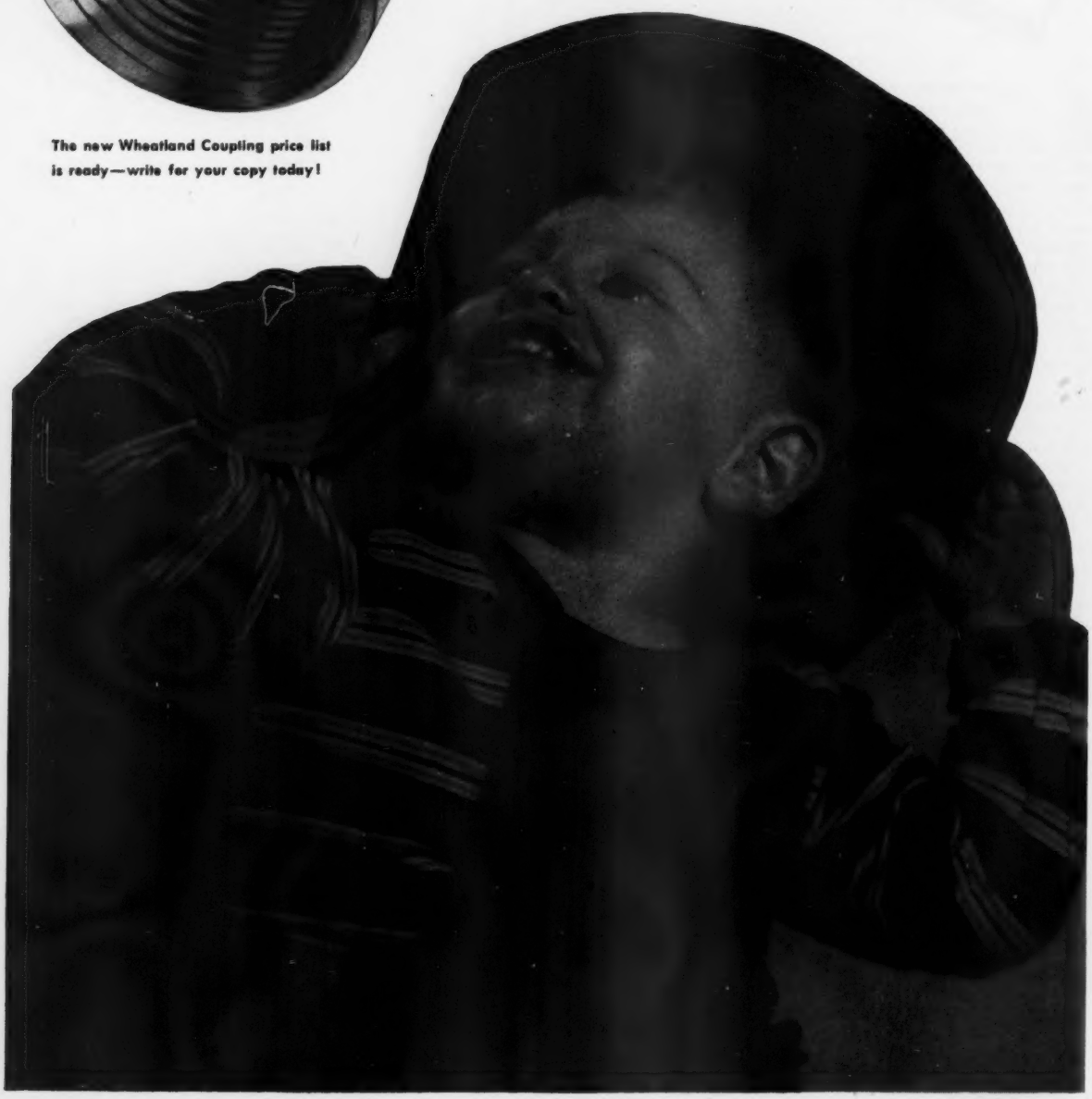
GOES ON *easy* . . .

precision couplings by

Wheatland
STEEL PRODUCTS
COMPANY

BANKERS SECURITIES BUILDING JUNIPER AND WALNUT STREETS • PHILADELPHIA 7, PA.

The new Wheatland Coupling price list is ready—write for your copy today!



5-70 KITCHEN QUEEN
Full 72 in. wide—two basins—two drainboards. Porcelain enamel on cast iron. *Temple* trim with *Dial-ese* controls, swinging mixing spout, retractable hose spray.

5-75 KITCHEN PRIDE
Twin basin sink only 38 in. wide with features of the Kitchen Queen.

GET YOUR SHARE OF THIS

sink market

Many home owners want to modernize their kitchens. All too many are laboring under the belief that they will have to wait six months—a year—two years.

If you will tell your prospects that you are in a position to furnish a brand-new, freshly styled, up-to-the-minute Crane sink, you will find that you can develop a lot of very profitable business.

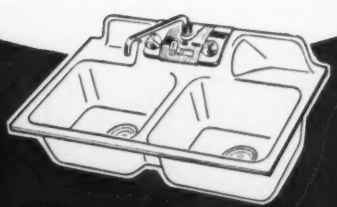
The complete line of Crane kitchen sinks is in production. Order your display models now—these sinks on your floor will sell themselves.

Also available is promotional material to help you with your selling campaign. Call your Crane Branch or Crane Wholesaler for information.

All Crane sinks have outlet to accommodate General Electric Disposall.

5-85 HOMEMAKER
A compact single basin, single drainboard sink 42 in. wide with either right or left-hand drainboard. Made of high quality Crane porcelain enamel on cast iron. *Temple* trim with *Dial-ese* controls. Swinging mixing spout. Retractable hose spray.

5-80 SUNNYDAY
Here is a sink that will lighten kitchen duties and provide ample room for food preparation—60 in. wide, it provides a large 8-in. deep basin and two drainboards. Made of porcelain enamel on cast iron. *Temple* trim with *Dial-ese* controls. Swinging mixing spout and retractable hose spray.



5-120 ALL-AMERICAN
Here is the ideal sink for counter-top installations. Made of porcelain enamel on cast iron—one-piece construction. *Temple* trim with *Dial-ese* controls. Swinging mixing spout and retractable hose spray. 38 in. wide.

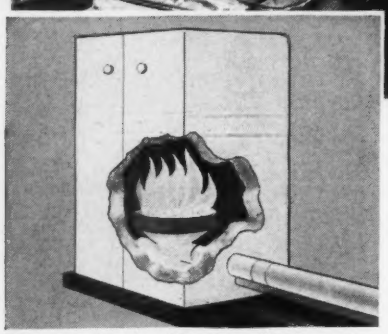
CRANE

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO 5

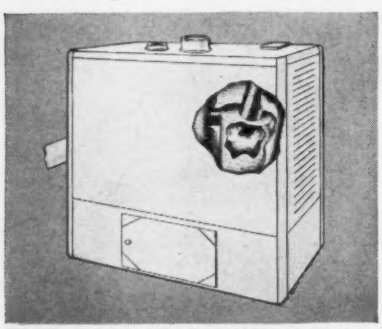
PLUMBING AND HEATING · VALVES · FITTINGS · PIPE

NATION-WIDE DISTRIBUTION THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING DEALERS

Will your customers find the kitchen their only warm room?



Automatic Anthracite Stokers Installed in an existing boiler or furnace and in new houses, automatic hard coal stokers deliver *plenty* of heat quickly . . . save up to 50% on fuel bills . . . eliminate fuel worries.



The Revolutionary Anthratube The Anthratube saves on fuel bills . . . its proved efficiency is over 80%. This scientifically engineered boiler-burner unit, with "Whirling Heat" and other revolutionary features, produces quicker response and superior performance than units using other types of fuel.

There are no Ifs, Ands or Buts when you sell Automatic Anthracite Heating

YOUR CUSTOMERS *can* have *plenty* of worry-free heat because there's plenty of hard coal and there is anthracite equipment to fit any heating requirement.

A whole winter's supply of anthracite can be stored easily in advance. Everyone wants this kind of security and convenience. They have *just that* when you sell automatic anthracite equipment.

Look over the two types of domestic anthracite equipment shown here. They burn the cheaper sizes of economical hard coal . . . completely automatic from bin feed to ash removal.

Write to us for more detailed information on all types of anthracite heating equipment—domestic and commercial.

ANTHRACITE INSTITUTE

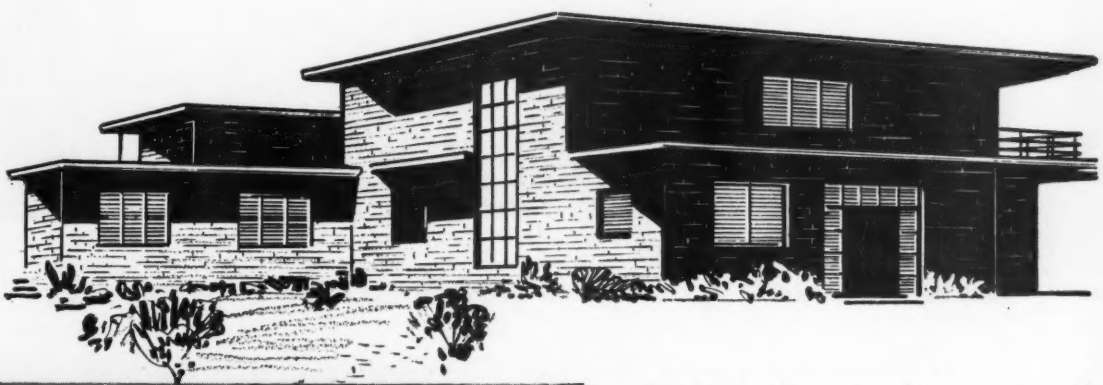
101 Park Avenue • New York 17, New York

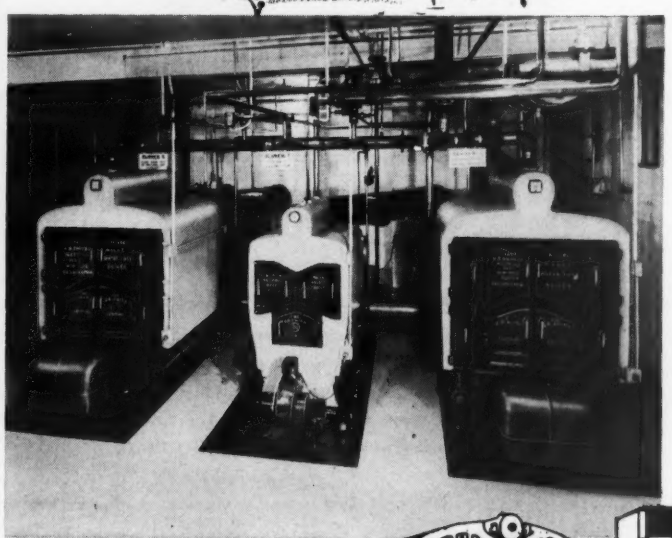
What boiler would you recommend for a $350,000 home?

The finest, of course. That's what the architect, engineer, and contractor did when they built this magnificent home. In fact, they chose *six* H. B. Smith boilers — two to heat the main house, by radiant heat and by air conditioning . . . one to supply domestic hot water . . . two to warm the swimming pool water and recirculate it . . . still another to supply domestic hot water and car-washing water to the garage.

No matter the size of the home your client wishes, you can recommend an H. B. Smith boiler that will give him "luxury" heating at bargain basement prices—for Smith-Mills boilers are designed and engineered to deliver maximum heat at lowest cost. True, they cost a little more to buy, but smaller fuel and maintenance bills more than make up the difference.

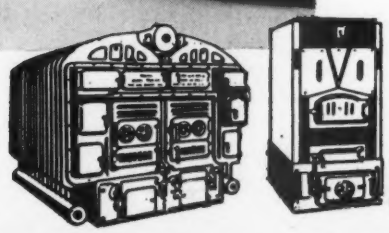
Which boiler will you specify on the next job where the best in residential, industrial, institutional or commercial heating is requested? You can't go wrong if you recommend H. B. Smith!





This functionally modern home was recently built in Bloomsburg, Pa., by Harry L. Magee, president of The Magee Carpet Company; it is one of Pennsylvania's finest show places. Berninger, Haag, and D'Entremont, Architects; George A. Heath, Heating Engineer; Wm. L. Coombs, Heating Contractor; Percy Swank, Building Contractor.

Largest boiler room in the Magee residence (there are several others!) includes two No. 340 oil-fired boilers and one No. 24 Hy-Test oil-fired hot water supply unit, all H. B. Smith products.

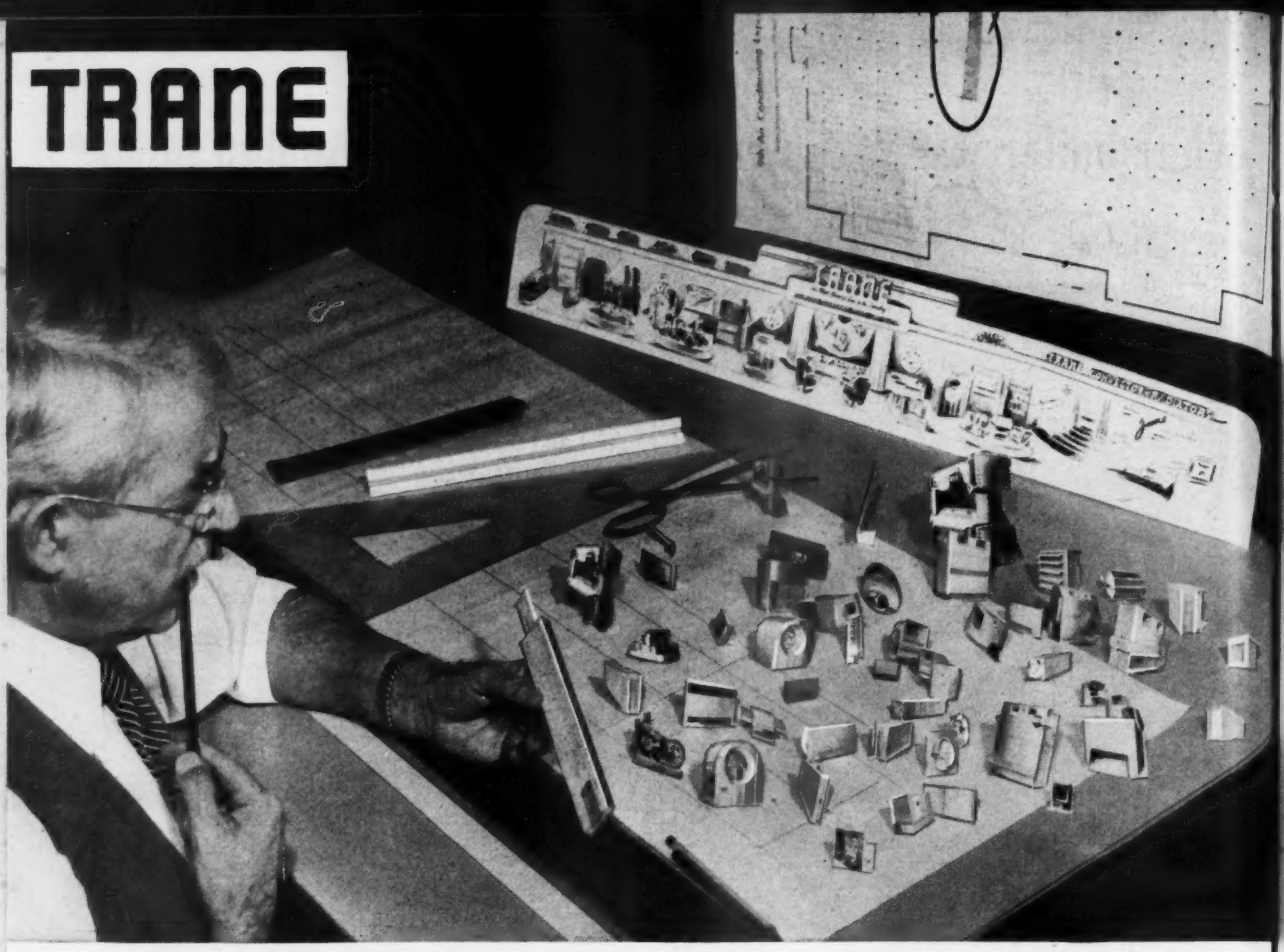


H. B. Smith

CAST-IRON BOILERS

THE H. B. SMITH CO., INC., 61 Main Street, Westfield, Mass. • OFFICES AND REPRESENTATIVES IN PRINCIPAL CITIES

TRANE



How are you going to get it all in one booth?

THE ILLUSTRATION: *Mr. O. T. Jackson, Trane Art Director, puzzles over scale models of Trane products and a sketch of the 134-foot Trane exhibit to be displayed at the Heating and Air Conditioning Exposition which opens in Chicago January 24.*

What's the BEST way to make it EASIEST for engineers, architects and contractors to learn the MOST about Trane products and services at the Heating and Air Conditioning Exposition?

That was the problem, and we believe you'll find it solved to your satisfaction when you visit the big Trane exhibit.

It's set up to give you *new* ideas as well as a better understanding of *established* practices in the application of Trane's wide line of heating, ventilating and air conditioning equipment.

The huge booth will be manned by a dozen specialists, aided and abetted by 75 to 100 other Trane engineers attending the show. Come see us!

THE TRANE COMPANY . . . LA CROSSE, WIS.

Manufacturing Engineers of Heating, Ventilating and Air Conditioning Equipment—Unit Heaters, Convector-radiators, Heating and Cooling Coils Fans, Compressors, Air Conditioners, Unit Ventilators, Special Heat Exchange Equipment, Steam and Hot Water Heating Specialties . . . IN CANADA, TRANE COMPANY OF CANADA, LTD., TORONTO.

TRANE PRODUCTS ON DISPLAY AT THE 9th INTERNATIONAL HEATING & VENTILATING EXPOSITION

CONVECTOR-RADIATORS
HORIZONTAL UNIT HEATERS
PROJECTION UNIT HEATERS
NON-FREEZE HEATING COILS
HOT WATER HEATING COILS
HOT WATER CIRCULATORS
DE COOLING COILS
RECIPROCATING COMPRESSORS
EVAPORATIVE CONDENSERS
UNIT AIR CONDITIONERS
WATER COOLING COILS

UNIT VENTILATORS
BLOWER UNIT HEATERS
DE LUXE UNIT HEATERS
STEAM HEATING COILS
LAUNDRY COILS
CIRCULATING PUMPS
CONDENSATION PUMPS
CENTRIFUGAL FANS
PROPELLER FANS
UTILITY FANS

WATER CHILLERS
SC AIR CONDITIONERS
WALL-FIN HEATERS
ROOF VENTILATORS
RADIATOR VALVES
THERMOSTATIC TRAPS
BUCKET TRAPS
STRAINERS
QUICK VENTS
FLOAT VENTS

MULTIPLE-ZONE AIR CONDITIONERS
APARTMENT AIR CONDITIONERS
UNITRANE AIR CONDITIONING
CUSTOM-AIR CONDITIONING
S & T HEAT EXCHANGERS
SPECIAL HEAT EXCHANGERS
DIRECT RETURN TRAPS
HOT WATER FLO VALVES
HOT WATER FLO FITTINGS
FEED AND RELIEF VALVES
TEMPERATURE CONTROL VALVES

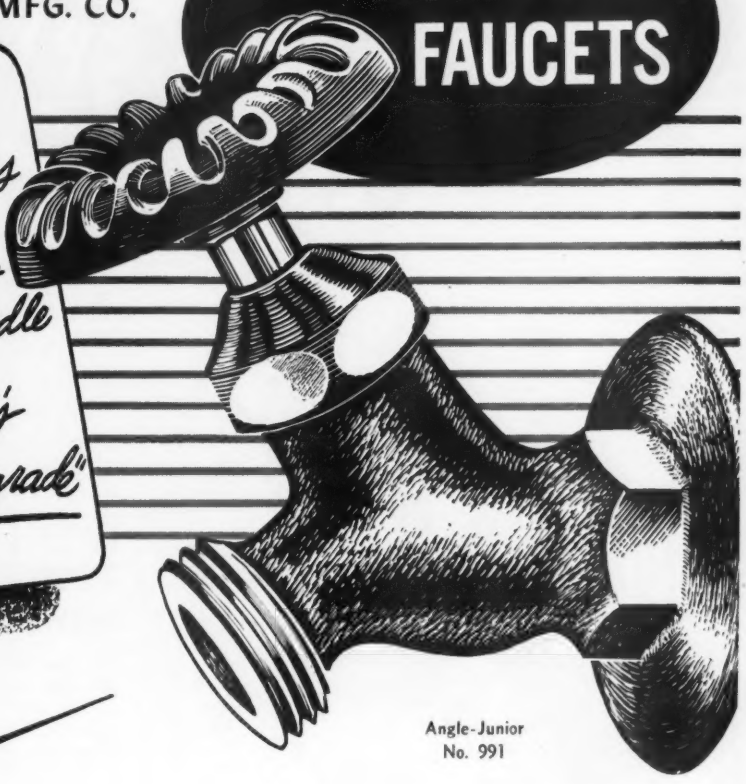
American
SANITARY MFG. CO.

ANGULAR SILL FAUCETS

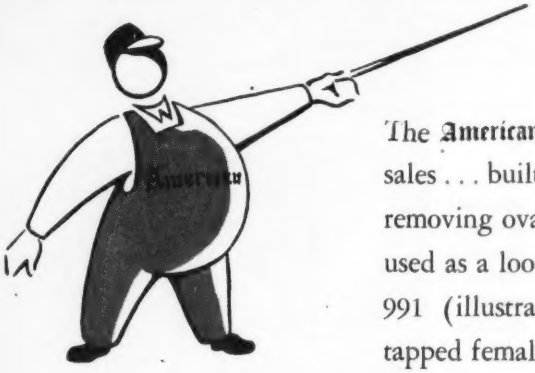
ORDER:

- Heavy red brass casting with
- positive grip wheel key handle

Be sure it's
• American "Hygrade"



Angle-Junior
No. 991



The **American** Sanitary angular sill faucet is designed for sales . . . built for long service. Finished in rough brass. By removing oval head screw the positive grip handle may be used as a loose key. Threaded for ¾" hose coupling. No. 991 (illustrated) tapped female for ½" pipe; No. 992 tapped female for ¾" pipe. Packed 6 to a box. Priced per our #78 revised price sheet. Prompt delivery.

Look to **American** Sanitary for a complete line of "Hygrade" quality tubular and cast goods . . . if you have it in mind, we have it in stock. It costs no more to sell the best —specify **American** Sanitary.

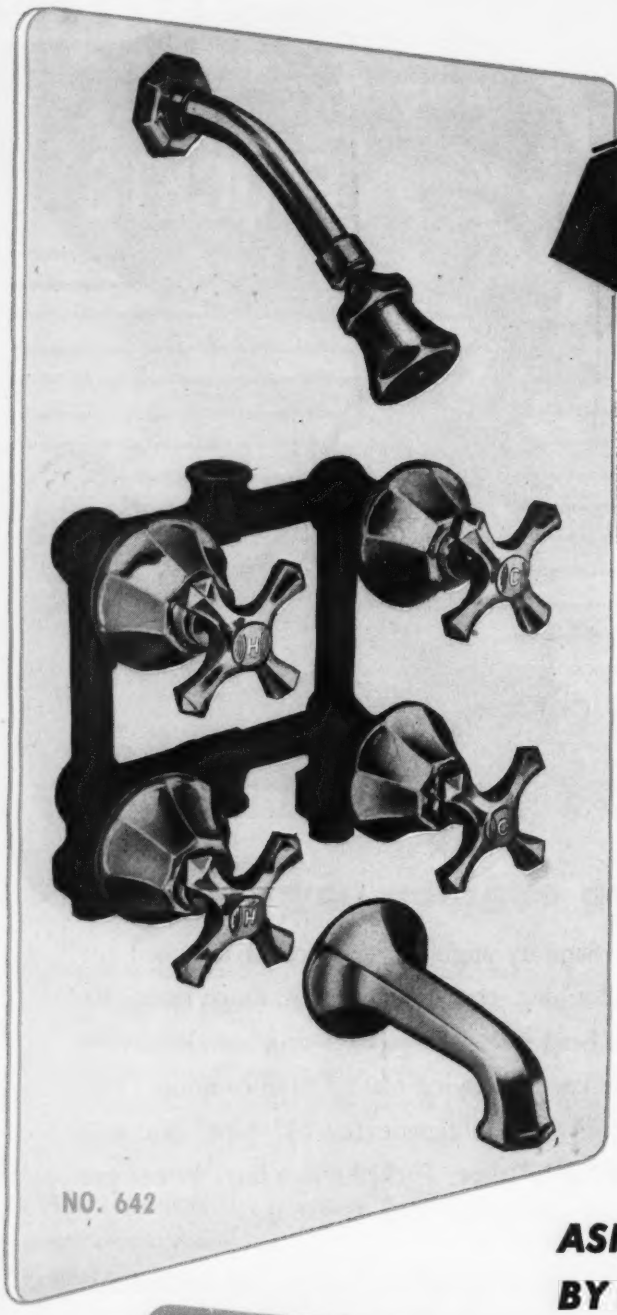
WE DISTRIBUTE THROUGH WHOLESALERS ONLY

Quality HYGRADE Durability

American SANITARY MFG. CO.

ABINGDON, ILLINOIS

OVER THIRTY YEARS' LEADERSHIP IN THE PLUMBING INDUSTRY



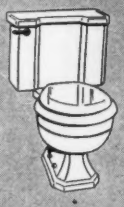
SPECIFY!
WITH CONFIDENCE

GERBER CHROME BATH and SHOWER SUPPLY UNIT!

You can be proud of your installation job with this Gerber Unit. Your customers will be thrilled and delighted with its jewel-like beauty and precision operation. When you install Gerber Fixtures you also install customer confidence, a confidence that is a Gerber tradition.

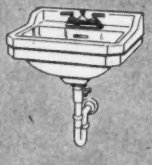
FOR YOUR CONVENIENCE THE WHOLESALE PLUMBING JOBBER HAS GERBER FIXTURES.

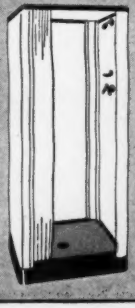
A LUXURY LINE OF PLUMBING FIXTURES FOR ALL!



MOUNT VERNON UNIT CLOSET
Colonial Design No. 1200 Reverse Trap Type Bowl with Jet Acceleration.
Modern Colonial Design—Panel Front Tank with Shell Top Cover. Bowl and Tank bolt together forming one compact unit.

THE MONTICELLO
No. 350-W Size 20" x 18", Modernistic Design Vitreous China Wall Hung Lavatory with Wall Brackets. With Gerber No. 143. With Pop-Up Drain 4" Countersol.





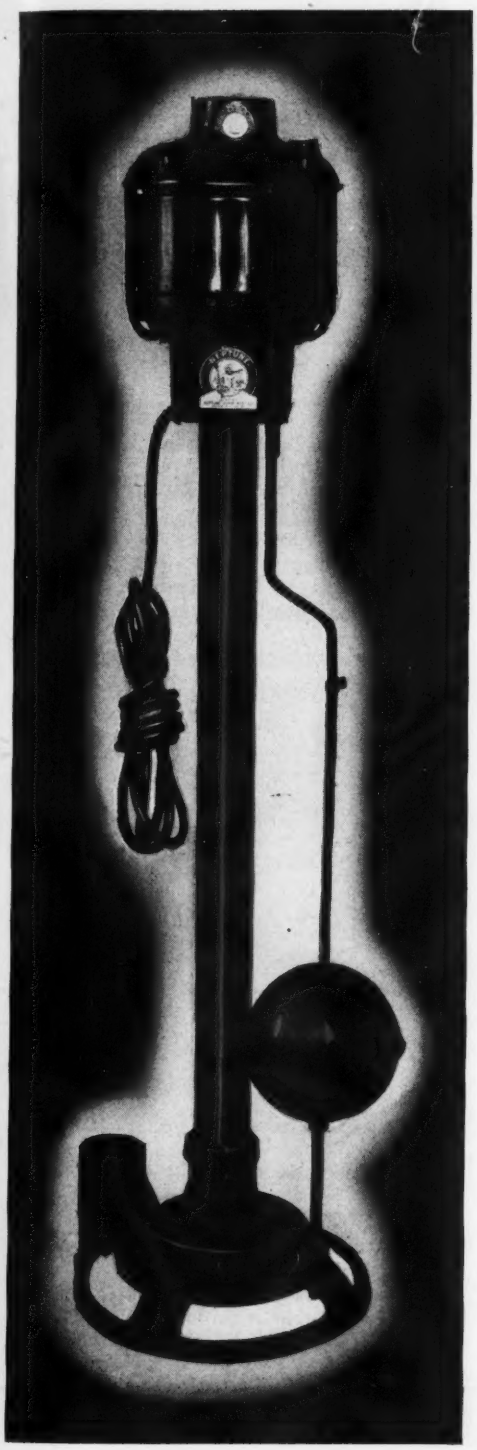
The famous Gerber Shower Cabinet. "Sturdy as Plymouth Rock." Made of zinc coated Bonderized rust proof steel with "Rostone" ceramic base. Leak and slip proof. Interlocking construction permits easy installation. 32" x 32" x 75" over all size.

ASK FOR IT BY NAME!

GERBER ENTERPRISES

232 NORTH CLARK STREET - CHICAGO 1, U.S.A.

KOKOMO, IND.
DELPHI, IND.
WOODBRIDGE, N. J.
PLYMOUTH, IND.



BRASS-MASTER

When It Pours... Neptune Reigns!

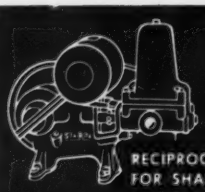
CONVENIENT WAREHOUSE STOCKS

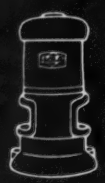
Neptune wholesalers! With the winter season well upon us, Neptune stocks are now ready for immediate delivery. The rugged, dependable, long-lasting Neptune . . . is standing by, ready to do overtime to save boiler rooms, basements and elevator pits from the rising waters of seepage. Contact your nearest Neptune factory representative. Those listed below have warehouse stocks on hand.

- NEW YORK CITY:
  Cowan Sales Co., Cortlandt 7-6823
- NEWARK, N. J.:
  Cowan Sales Co., Waverly 3-9279
- ATLANTA, GA.:
  The Jeff A. Hedden Co., Cypress 7950
- BOSTON, MASS.:
  Sands Heater Co., Commonwealth 6-7310
- WEST COAST:
  James A. Riordan Co., San Francisco - Los Angeles

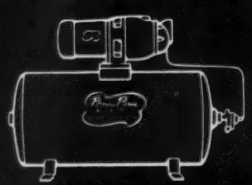
NEPTUNE
Sump Pumps

Neptune Pump Mfg. Co., 4912 N. 6th St. Phila. 20, Pa.


RECIPROCATING TYPE FOR SHALLOW WELLS


DEEP WELL JET PUMP

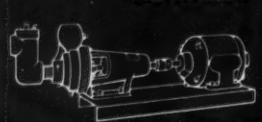
PERMA-PRIME SHALLOW WELL JET PUMP

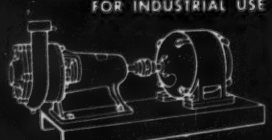

PERMA-PRIME SPECIAL WATER SYSTEM

RECIPROCATING TYPE DEEP WELL PUMP

CELLAR DRAINER

TURBINE PUMP FOR SHALLOW WELLS


TURBINE PUMP FOR INDUSTRIAL USE


CENTRIFUGAL PUMP FOR INDUSTRIAL USE

WATER SOFTENER

CENTRIFUGAL PUMP FOR INDUSTRIAL USE

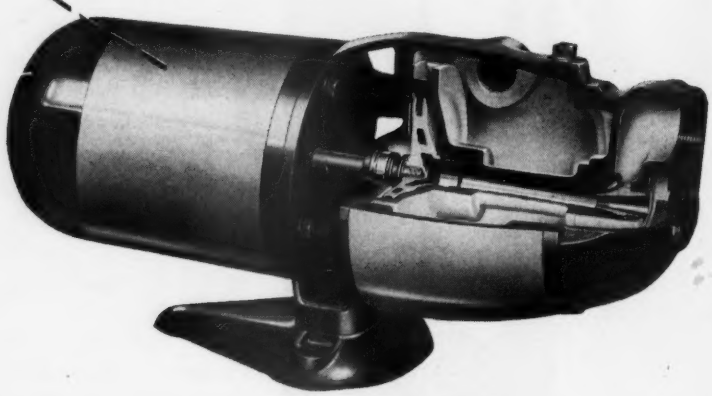
STA-RITE

Perma-Prime JET PUMP

Here's the INSIDE STORY!

Take a look at that long line of Sta-Rite pumps and water systems stretching down the page. It's a complete line, a pump or water system of every type, for every capacity and use.

And a Standout in the line is the Sta-Rite Perma-Prime Shallow Well Jet Pump.



Advanced Engineering and Styling are Premier Features of this pump.

BUILT-IN JET — Power-packed right in the pump. For simplicity and efficiency.

GLASS-LINED VENTURI — A "Life-Saver" for long wear. No rusting, corrosion, abrasion.

MODERN DESIGN — Neat, torpedo-type pump, attractively finished in color harmonized high gloss enamel.

Specifications:

Capacities: to 793 gallons per hour.

Horsepower: ¼ and ½

Lifts: to 25 feet.

Absolutely self-priming.

Available mounted on tank as a Water System too!

Write **FOR NEW SALES AID KIT**

Here's a whale of a program for sales promotion of Sta-Rite pumps, water systems, and softeners. Use these helps to help yourself pull in profits.

Name _____

Company _____

Address _____

City _____ State _____

STA-RITE PRODUCTS, INC.
Dept. DE 19 DELAVAN, WIS.

THE BEST IN 2 VITAL KITCHEN NEEDS

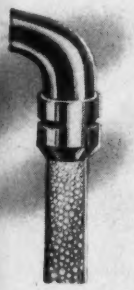
STREAMLUXE Barnes LINE

The "Challenger" Series 720 — a ledge-type sink faucet with fluted cone escutcheons. With Spray and Spring-Flo Aerator if desired.

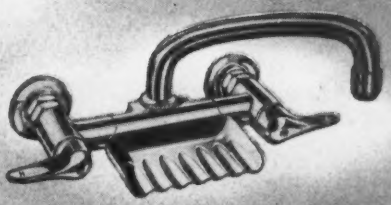
The "Champion" Series 725 — a ledge-type sink faucet with cylindrical escutcheons. With Spray and Spring-Flo Aerator if desired.

1

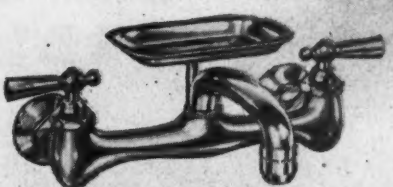
Sink Faucets with Advanced Styling, Enduring Beauty, and Life-Long Utility



All Barnes Streamluxe wall- and ledge-type faucets are available with the popular Spring-Flo Aerator — the unit which is catching the eyes of housewives everywhere. Non-Splashing, with millions of tiny air bubbles — it saves soap and adds a new thrill to easy dishwashing.



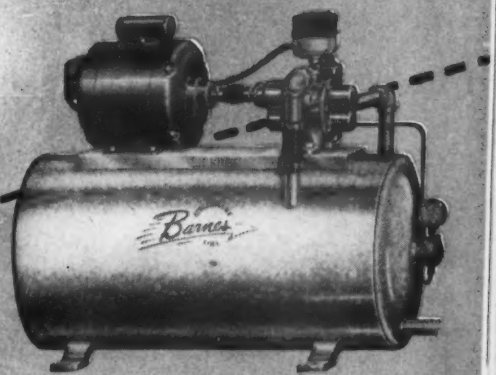
The "Mercury Deluxe" Style 621-6 — with the amazing Spring-Flo Aerator. A Wall-Type, Swing-Spout Faucet with exclusive fluted removable soap dish.



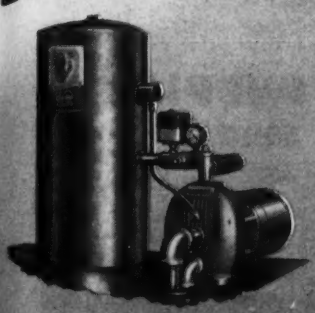
The "Acorn Jewel" Series 630 — with or without Spring-Flo Aerator or Removable Soap Dish. A conventional design finding wide acceptance for both new and replacement business.

2

The New, the Startling Barnes Water Systems for Water under Pressure on the Farm and in the Home



The first major improvement in shallow-well water systems in 30 years. Out-pumps, out-performs pumps 6 times its size. Self-Priming. Delivers up to 450 G.P.H. Simple! Sure! Self-Lubricating Throughout! Low in first cost.



A Jet-type, Self-Priming Water System for both deep and shallow-well pumping. Nine separate and distinct points of operating and service superiority. Delivers up to 2200 gallons per hour.

Buy the Best — Buy Barnes

BARNES MANUFACTURING CO.
MANSFIELD, OHIO

MAIL THIS COUPON TODA

BARNES MANUFACTURING CO.
617 North Main Street
Mansfield, Ohio

Please send me full information about:

..... Barnes Streamluxe Faucets
..... Barnes Streamluxe Water Systems

Name_____

Firm_____

Address_____

City_____ State_____

AGAIN IN 1949

MORE STEEL FITTINGS IN MORE SIZES FOR MORE CAPITOL DEALERS

MORE PROFITS, TOO!

Capitol Couplings

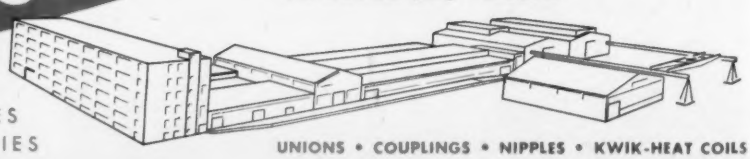
Capitol Pipe Unions

CAP CAPITOL

REPRESENTATIVES IN PRINCIPAL CITIES

CAPITOL MFG. & SUPPLY CO.

COLUMBUS, OHIO



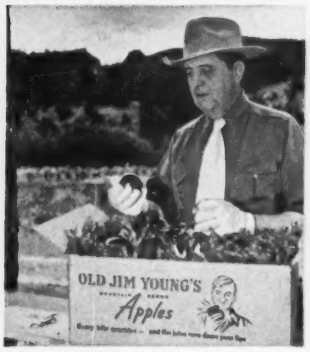
UNIONS • COUPLINGS • NIPPLES • KWIK-HEAT COILS

JIM YOUNG'S Smart idea!

Old Jim Young sells the snap and crackle of mountain grown apples by mail!

"THE IDEA WAS BORN on an abandoned homestead in the Jemez Mountains of New Mexico," relates Ford Truck user Jim Young. "In a canyon there, I noticed one old apple tree with fine looking apples on it. A Spanish fellow told me he had picked fruit from that tree every fall for twenty-odd years. Figuring this was a good frost-free spot, I cleared and terraced the land, dug irrigation ditches, set out apple trees. Ford Trucks were a big help in getting my idea started. They still are!"

JIM YOUNG and son Webb (left) discuss a proposed mail order advertisement. "Every bite crackles . . . and the juice runs down your lips" is typical taste-teasing Young claim.

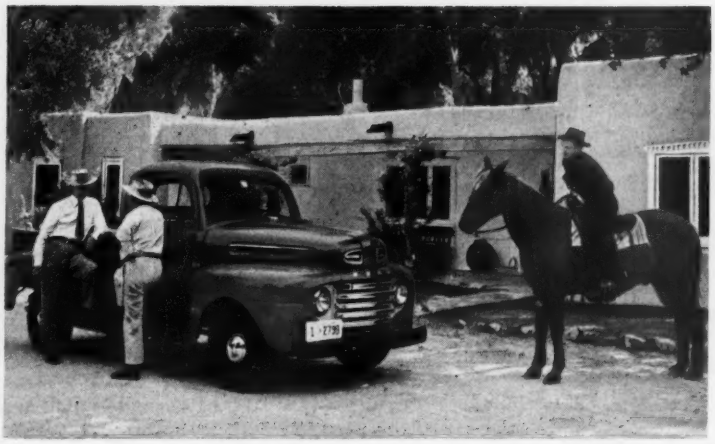


PACKED AS FAST as picked, under Jim Young's personal supervision, the cartons of apples are trucked immediately to the express office.

APPLES BY MAIL is only one of the Young ideas. Son Webb trades with Indians for hand-woven neckties, silver work, other handicrafts which make the Youngs' mail order selling a success.

JIM YOUNG'S Smart move!

He selects Ford . . . the Bonus Built Truck, to do the hauling in his business. Smart move! Smart business!



NEW FORD PICKUP TRUCK is demonstrated to Young by Ford Dealer, Joe DuBois of Santa Fe. "If this truck can stand up and take it like the older Fords," says Jim, "it's a mighty fine piece of machinery." Replies Joe DuBois, "There's no reason why it shouldn't stand up even better. It's built stronger. Every one of over 139 Ford Truck models has big strength-reserves which extend truck life."

THE COCHITI INDIAN truck driver and Jim admire a smart idea in Ford engine design. "Locating that distributor high on the engine so water can't get at it when a truck splashes through one of our running arroyos is a smart idea," says Jim Young.

"THIS AIR WING VENTILATOR in the door glass is practically a Ford Truck exclusive," says Ford Dealer Joe DuBois to Jim Young. "It's *standard* on Ford Trucks, but you can't get it for love or money on 9 out of 10 other new trucks."

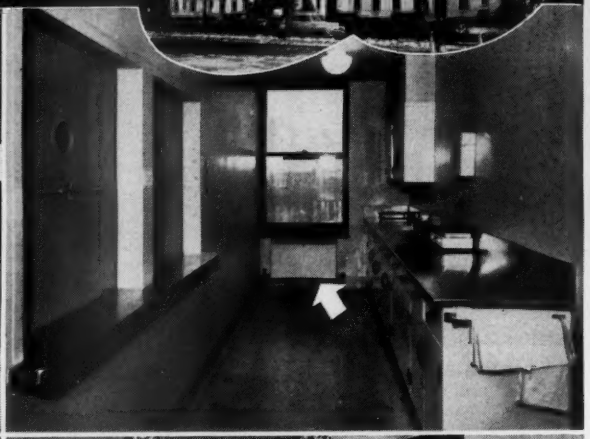
"IT'S A BIGGER BODY than it looks," says Jim Young. "For orchard work and Indian trading it's just what we need. And I like that all-steel floor, too." "Yes," replies Joe DuBois, "any way you look at it Ford's the smart move for any load."

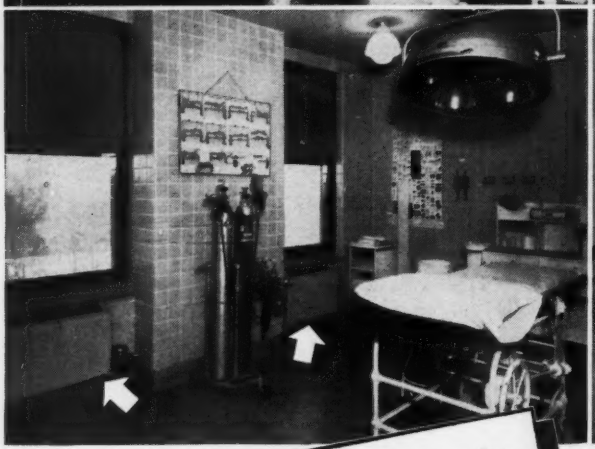
JIM YOUNG'S Smart bet!

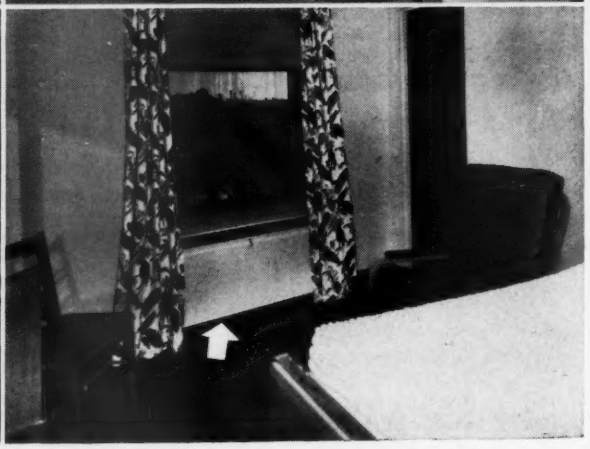
FORD TRUCKS LAST LONGER!

Using latest registration data on 5,444,000 trucks, life insurance experts prove Ford trucks last longer!

Clean, Healthful Heat ...FOR HOSPITALS







Install Young Convector - Radiators in:

✓ Homes ✓ Apartments
✓ Schools ✓ Public Buildings
✓ Offices ✓ Institutions

SPECIFY Convector-Radiators by YOUNG

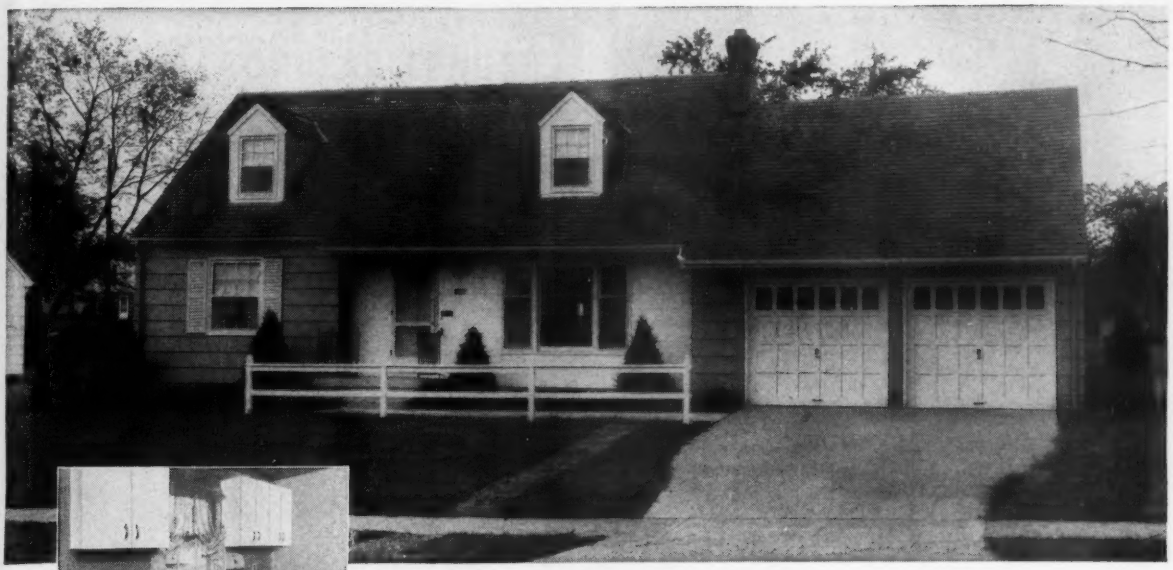
Two outstanding examples of the effectiveness of Young Convector-Radiators for heating hospitals are the installations made by Magney-Tusler & Setter, Architects and Engineers, in both the Swedish and Deaconess Hospitals in Minneapolis, Minnesota. Illustrations above show typical installation views throughout the hospital—in reception rooms, diet kitchens, operating rooms and convalescent rooms, as well as hallways and stairways. Convector-Radiators by Young provide clean heat at controlled temperatures . . . so vital to hospital use. Their heat-sensitive cores obtain full efficiency for steam and hot water systems. Their attractive, streamlined cabinets are easy to keep clean, conserve floor space and may be painted to harmonize with room interiors. Write today for your free copy of the latest Young Convector-Radiator Catalog.

YOUNG
HEAT TRANSFER PRODUCTS

T.M. Reg. U.S. Pat. Off.
YOUNG RADIATOR CO.
Dept. 569-A
GENERAL OFFICES: RACINE, WISCONSIN
Plants at Racine, Wisconsin and Mattoon, Illinois
Sales and Eng. Offices in All Principal Cities

HEATING, COOLING AND AIR CONDITIONING PRODUCTS
Convectors • Unit Heaters • Heating coils • Cooling coils • Evaporators • Air conditioning units •

AUTOMOTIVE AND INDUSTRIAL PRODUCTS
Gas, gasoline, Diesel engine cooling, radiators • Jacket water coolers • Heat exchangers • Intercoolers • Condensers • Evaporating coolers • Oil coolers • Gas coolers • Atmospheric cooling and condensing units • Supercharger intercoolers • Aircraft heat transfer equipment



MR. MILLER NICHOLS

A community without garbage

that's our aim...

HERE'S the report you get from builders across the country: It pays to plan homes that are free from all garbage. The garbage disposer is one of the most wanted features in a modern home.

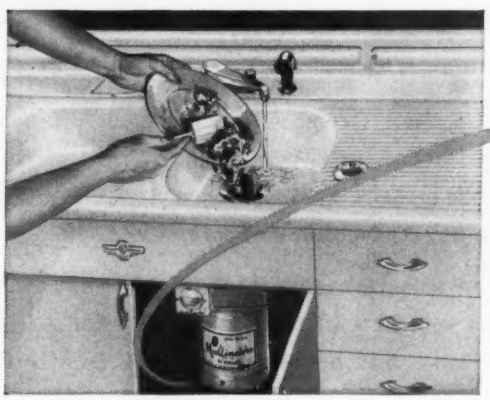
A typical industry spokesman, Mr. Miller Nichols, Sales Manager of the J. C. Nichols Company, Kansas City, Mo., says:

"We have now installed 300 Youngstown Steel Kitchens in our Country Club homes—recently, many have included Mullinaiders. *The Kitchenaider-Mullinaider combination is desired by our home purchasers.*"

This is no exceptional case. Merchandising plumbers across the country have discovered that one of today's best opportunities is in the builders' market.

The time is ripe! Aggressive selling of Youngstown Kitchens, the Kitchenaider-Mullinaider combination and the Mullinaider electric garbage disposer is a sure road to new profits.

MULLINS MANUFACTURING CORPORATION, WARREN, OHIO



The Mullinaider electric garbage disposer eliminates evil-smelling, disease-spreading garbage cans. Adds only a little to the cost of a house; but adds a lot to the value. Will soon be a "must" in every kitchen.

Youngstown Kitchens

BY MULLINS

World's Largest Makers of Steel Kitchens

DEMING *Features* SPEED SALES

Deming Figure 1890
"MARVEL"
for Shallow Wells
Capacities:
275 and 375 G. P. H.

OUTSTANDING FEATURES OF DEMING "MARVEL" SHALLOW WELL WATER SYSTEM

TIMKEN ROLLER BEARINGS on crank shaft.

BALL BEARINGS on crank end of connecting rod.

LIVE RUBBER CUSHIONS between pump and sub-base.

QUIET OPERATION and longer service life of pump.

SECTIONAL CONSTRUCTION assures minimum cost for repairs after long service.

UNIT TYPE PISTON is easily removable.

SPLASH SHIELD (originated by Deming) prevents water leakage into oil reservoir.

MANY MORE FEATURES make the Deming "Marvel" *outstanding for value!*

● Sell Deming "Marvel" FEATURES! They challenge comparison! Tell your prospects Deming FEATURES mean *extra* service, *longer* life, *greater* economy, *MORE VALUE* per dollar of investment!

Remember... EVERY Deming Water System has *TOP QUALITY FEATURES!* For quicker sales and better profits, *SELL DEMING!*

THE DEMING CO., 513 BROADWAY, SALEM, OHIO

DEMING
THE COMPLETE LINE
PUMPS AND WATER SYSTEMS

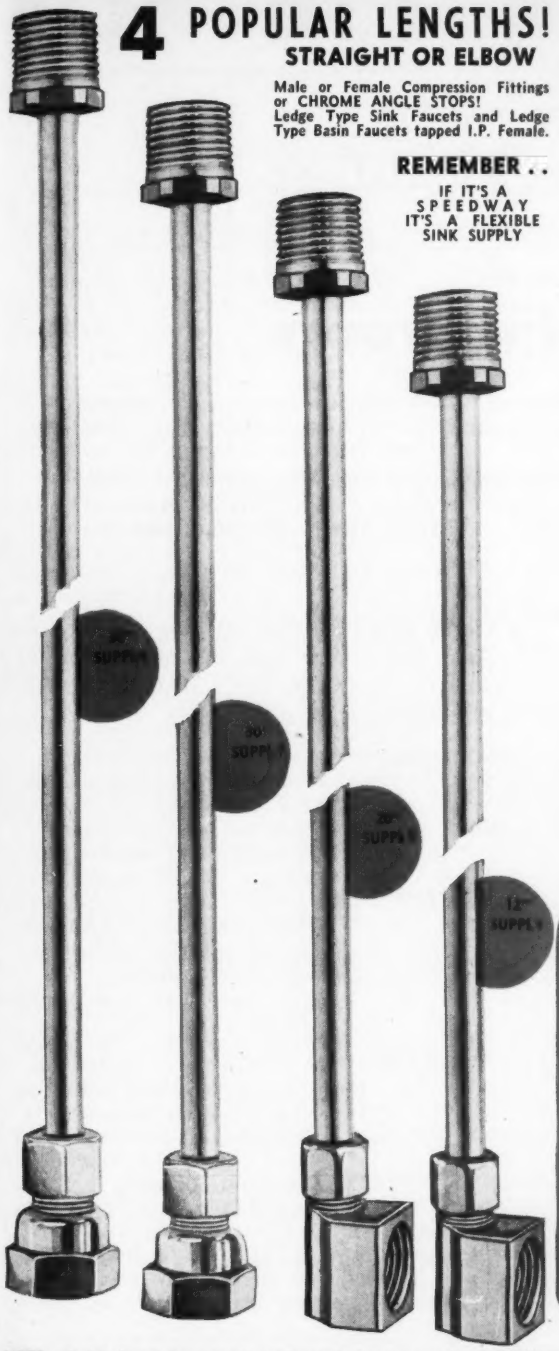
LEDGE-TYPE SINK JOBS *Greatly Simplified* with SPEEDWAY

4 POPULAR LENGTHS!
STRAIGHT OR ELBOW

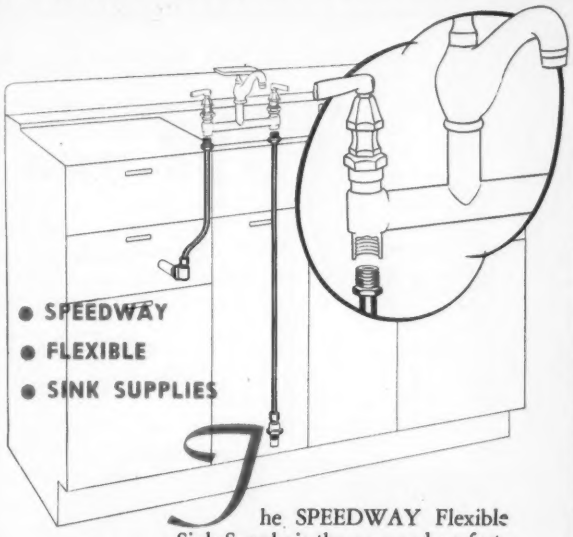
Male or Female Compression Fittings or CHROME ANGLE STOPS! Ledge Type Sink Faucets and Ledge Type Basin Faucets tapped I.P. Female.

REMEMBER . .

IF IT'S A SPEEDWAY IT'S A FLEXIBLE SINK SUPPLY



NOTE: If sink faucet has ground seat for tail-piece use regular SPEEDWAY Basin Supply.



- SPEEDWAY
- FLEXIBLE
- SINK SUPPLIES

The SPEEDWAY Flexible Sink Supply is the new and perfected supply that puts ledge-type sink jobs on a more modern plane. Like other SPEEDWAY parts, SPEEDWAY Flexible Sink Supplies enable Master Plumbers to do a faster, cleaner, more uniform job. They eliminate the costly, unexpected turn which is apt to occur with a more detailed installation. In this way, the SPEEDWAY Flexible Sink Supply simplifies the means of estimating plumbing charges by the job. It speeds up the work and adds to the profits.

WATCH FOR THE NEW
SPEE-D-Luxe
Line of Flexible Lavatory Closet and Sink Supplies

For more water flow in low pressure areas.

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BRASS GOODS BY Manufacturers of Quality Valves and Fittings

Brass Craft MFG. CO.

We told you our story...

NOW you tell us yours

You know about Micromet*—how it controls corrosion, prevents lime scale, cleans up red water . . . yet has no effect on the taste or potability of water.

PROFIT EVERY MONTH. Micromet Feeders automatically condition up to a million gallons of water a month. Install Micromet Feeders—the Micromet for recharging them each month pays you handsome profits.

*T.M. Reg. U.S. Pat. Off.

CALGON, INC.
HAGAN BUILDING • PITTSBURGH 30, PA.

CHECK THIS LIST. Tell us *your* troubles due to water. Fill in your name and address, cut out and mail to: CALGON, INC., HAGAN BUILDING, PITTSBURGH 30, PA.

CORROSION

- ☐ 1. Hot water storage tanks rust out
- ☐ 2. Hot water pipelines rust out
- ☐ 3. Rusty hot water
- ☐ 4. Air conditioning units rust out

LIME SCALE

- ☐ 1. Water heaters and pipes "lime-up"
- ☐ 2. Heating coils clog with lime
- ☐ 3. Heating efficiency lost
- ☐ 4. Lime scale forms in air conditioning units

RED WATER

- ☐ 1. Water is from private well systems
- ☐ 2. Comes from the ground clear
- ☐ 3. Both hot and cold water turn red
- ☐ 4. Water stains fixtures
- ☐ 5. Water stains laundry
- ☐ 6. Pipelines clog with iron deposits

OTHER TROUBLES_____

CALGON, INC. HAGAN BUILDING PITTSBURGH 30, PA.

Send me specific information and literature to help me lick the trouble I've indicated above.

NAME_____

ADDRESS_____

CITY_____ STATE_____

MONTHLY NEWS LETTER

A special message for busy readers—reporting last-minute news and highlighting important and timely material in this issue.

CENSUS SHOWS GAIN IN PLUMBING AND HEATING SYSTEM INSTALLATIONS

Steady improvement in living standards on farms as well as in cities is reflected in the contrast between the number of homes equipped with bathtubs and central heating systems in 1947 as compared with 1940.

In 1940, 69.8 percent of all dwelling units in the United States had running water in the house; 1947, 78.3 percent, according to a Bureau of the Census survey. In 1940, only 42 percent of America's homes had central heating; 1947, 49 percent. In 1940 only 17 percent of the nation's farms had running water; 1947, 33 percent. A total of 83 percent of city dwellers now have a bathtub or shower as compared with 76.7 percent in 1940. During the same period, the number of bathtubs on farms has risen from 10.6 percent to 20.1 percent.

The census figures, while showing the marked improvement in homes, also indicate the vast market remaining for the installation of new bathrooms in existing houses, the need for the replacement of much of outmoded existing equipment, the need for millions of new kitchen sinks and other plumbing fixtures, and the market for both manually and automatically fired hot water and steam heating plants, stokers, oil burners, gas burners, and domestic water heating equipment.

PRODUCTION INDEX OF PLUMBING & HEATING MATERIALS

Department of Commerce's recent monthly index of production for selected construction materials (August and September, 1948) shows cast iron radiation production up 3.4, from 105.7 in August to 109.1 in September.

Mechanical stokers, class 1, 2 and 3 only, up 37.7, from 125.5 to 163.2; galvanized range boilers shipments, down 16.8, from 70.5 to 53.7; cast iron soil pipe and fittings, up 14.2, from 169.7 to 183.9; warm air furnaces, up 20.7, from 220.9 to 241.6, and clay sewer pipe, down 1.1, from 143.8 to 142.7.

AMERICAN FARMERS SPENT $7 BILLION SINCE 1940 ON HOMES

American farmers have spent almost $7 billion since the beginning of 1940 modernizing and replacing their homes and other farm buildings, Melvin H. Baker, chairman of the Construction Industry Information Committee, stated recently.

"The farm building boom, which has brought a great advancement in living conditions and in efficiency of farm operations, has grown to new annual peaks of more than a billion dollars in both 1947 and 1948. These totals are believed to be conservatively low.

"The big building program has been made possible by the record-breaking farm income, which has risen from $6.4 billion in 1940 to $21.6 billion for 1947, despite a 10 percent decline in farm population.

"Of the $1.1 billion spent on farm construction during the last year, at least $450 million went into new buildings and the remainder was for maintenance and improvement of existing structures."

HOME BUILDING PROGRAM

Definite progress is being made in the development of a broad program for accomplishment of the objectives of the Housing Act of 1948 in regard to the standardization of building codes and materials, Raymond M. Foley, Housing and Home Finance Agency reported recently.

Several projects are already underway under the program, he said, and others are being planned for the near future.

"Our broad objective in the program," he declared, "is to assist private industry, through technical research and promotions, in the production of more and better housing at a lower cost. Our policy is one of cooperation with the technicians of private industry, universities, and others who may have an interest in the solution of specific problems in the field of housing.

"An example of such cooperation is our uniform plumbing code committee, comprised of representatives of the National Assn. of Master Plumbers, the United Assn. of Journeymen Plumbers, the U. S. Public Health Service, and the National Bureau of Standards which developed our proposed uniform plumbing code for housing.

Among technical research projects contemplated for early completion, are expansion of the uniform plumbing code for housing into a set of recommendations applicable to all types of plumbing installations for industrial and commercial buildings in cooperation with Department of Commerce; moisture condensation control, and performance standards of septic tanks.

Today's houses and other buildings are more comfortable and more convenient and better suited to their functions than those of any other period in history, Melvin H. Baker, chairman of the Construction Industry Information Committee, stated recently.

"Today, it is the house itself that performs. The modern house is designed . . . to keep out dirt and dust, cold and heat, to have controlled temperatures and good ventilation. The ordinary new house has at least one complete modern bathroom installed, a central heating plant, stove, refrigerator, and kitchen cabinets installed, . . ."

GAS EQUIPMENT SALES AT HIGH RATE DURING 1948

Sales of gas water heaters and gas space heaters reached all time highs in 1947 and 1948.

Automatic gas water heater sales totaled 1,500,000 in 1948; gas space heaters 2,500,000 units; gas-fired central house heating, (furnaces, boilers and conversion burners) almost 300,000 installations.

LATEST HEATING EQUIPMENT SHIPMENTS

September shipments of cast iron boilers declined to 31.3 million pounds valued at $5.5 million, a decrease of 6 percent from the 33.2 million pounds shipped in August, but slightly higher than shipments in September, 1947. Inventories of cast iron boilers dropped to 68.8 million pounds on September 30. The 5.5 million sq ft of cast iron radiation shipped during September increased slightly above the August level of 5.3 million sq ft and was 14 percent higer than shipments in September, 1947. Inventories increased to 3.6 million sq ft at the end of September.

September shipments of 56 thousand oil burners and burner units were up 12 percent from August, but nearly 54 percent below the 122 thousand units shipped last year. Shipments of residential type burners and burner units amounted to 54 thousand units, 96 percent of the total number of oil burners shipped in September. The remaining 2 thousand units were commercial and industrial burners and boiler-burner units. Stocks of burners and units on hand at the end of September declined to 44 thousand units.

Warm air furnaces totaling 103 thousand units, valued at $18.3 million, were shipped in September, an increase of 12 percent above the August level of 92 thousand units and 14 percent above the 91 thousand units shipped in September, 1947. September shipments of 53 thousand solid fuel furnaces showed an increase of 11 percent above the August level. Shipments of 27 thousand oil-fired furnaces represented an increase of 14 percent, and shipments of 24 thousand gas-fired furnaces also increased 14 percent above the previous month. Stocks of warm air furnaces on hand at the end of September dropped to 80 thousand units from August 31 stocks of 84 thousand units.

September shipments of 197 thousand water heaters, except electric types, were valued at $8.7 million, a decrease of 6 percent from the previous month and a decline of 7 percent from September, 1947. Shipments of direct fired water heaters totaled 180 thousand units valued at $8 million, and shipments of 16 thousand indirect water heaters valued at $694 thousand. Shipments of 40 thousand range boilers, valued at $609 thousand, were down 24 percent from the 52 thousand units shipped in August.

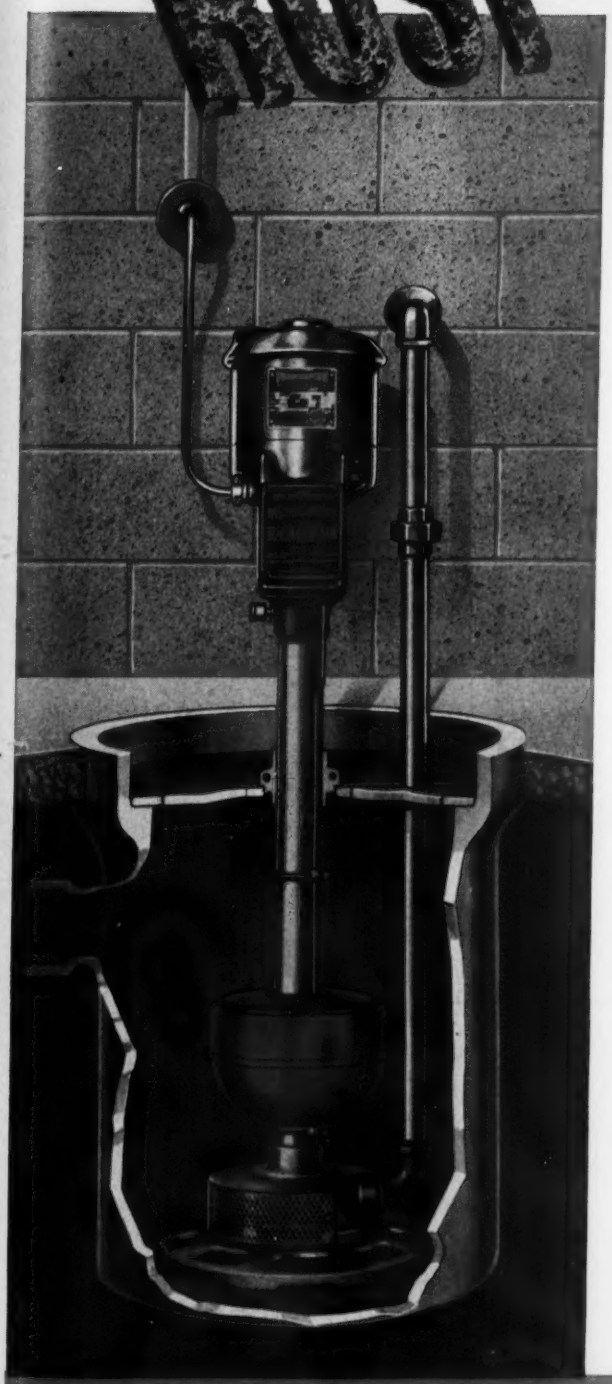
Shipments of electric water heaters in September amounted to 70,989 units valued at $4,870,244, according to data collected by the National Electrical Manufacturers Assn.

September shipments of 66 thousand floor and wall furnaces were valued at $3.7 million; compared with August shipments of 60 thousand units valued at $3.6 million. Floor furnaces represented 84 percent of the total number of these units shipped in September.

NEW PLUMBING AND HEATING PRODUCTS

Plumbing, heating and air conditioning manufacturers announce production of more efficient and improved styling on new products. See page 120.

RUST-PROOF CONSTRUCTION



means DEPENDABLE OPERATION

OF *Penberthy*

AUTOMATIC ELECTRIC SUMP PUMPS

A sump pump always works in a damp location. Many of its parts are alternately submerged in water and exposed to air. Conditions are perfect to promote rust and corrosion that interfere with dependable operation.

Dependable operation demands rust-proof construction. Penberthy Automatic Electric Sump Pumps are made of copper and bronze throughout . . . they are immune to corrosion.

There are many other features that contribute to the outstanding performance and dependability of these Penberthy Pumps. Among them are: motor specially impregnated to resist moisture, built-in overload protection, mercury switch, and scientifically balanced impeller. Penberthy Automatic Electric Sump Pumps are carried in stock by jobbers everywhere.

Penberthy Injector Company
DETROIT 2, MICHIGAN
Established 1886
Canadian Plant: Windsor, Ontario

PENBERTHY AUTOMATIC ELECTRIC SUMP PUMPS

Constructed of Copper and Bronze Throughout
MADE IN SEVEN MODELS AND SIZES

The Bedfordshire
B-8230

Popular Price ...Easy to Sell

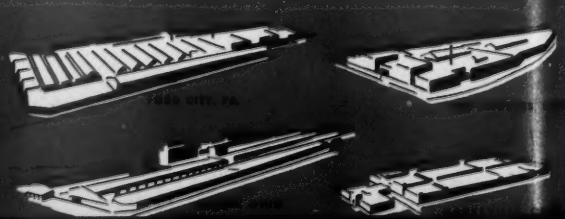
The Eljer Vitreous China Bedfordshire Urinal is a natural for schools, office buildings, institutions and comfort stations.

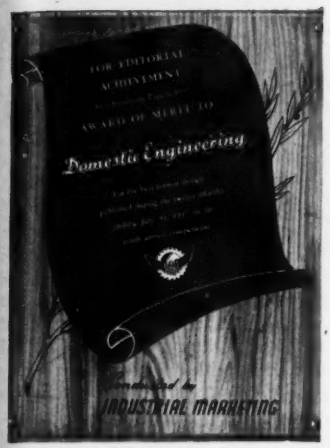
Because it is easy to clean and keep clean, this well-designed fixture appeals to architects and builders alike. The hard, glass-like surface resists stain and reduces janitor service to a minimum ... an economy which appeals to every building manager.

Ask your Eljer Distributor about this fixture, or write direct to Eljer Co., Box 192, Ford City, Pennsylvania.

It pays you, it pays us– because we specialize in Plumbing Fixtures and Brass

ELJER





Between Ourselves

HIGHLIGHTS AND SLANTS . . . ON OUR INDUSTRY'S MONTH

Awards reproduced here were presented to Domestic Engineering during the year just past for "outstanding editorial achievement in behalf of its industry," in country-wide competition with 665 entries representing more than 200 leading business publications.

Modern Design

To the Editor:

We are faced with a problem of supplying a chemical toilet to be installed in a Kaiser passenger car. This car is to be used by two men who expect to remain welded inside of it for a period of one year while touring the United States on an advertising and promotion campaign.

Any information or suggestions as to how we can best provide same will be greatly appreciated.

R. E. Carson

Grants Pass, Ore.

• Every month, your editor's mail bag contains a number of letters describing unique or bizarre installations and indicating the broad scope of services performed by our readers. In the case of the letter above, it is quite apparent that the two men to be imprisoned inside the car (we doubt if the men themselves are to be welded) must place a lot of reliance upon Mr. Carson.

When our readers request product information, we are always glad to oblige by supplying lists of the manufacturers of the particular products desired.—Ed.

Plumbing—2000 Years Ago

A correspondent writes from Italy: We know the Romans had aqueducts to carry water, so they must have had plumbing to distribute it. This is proven by a little fountain splashing merrily in the Italian sunshine. The water is carried to the fountain by lead pipes laid by the Romans more than 2000 years ago.

A modern party of tourists were viewing this fountain in the courtyard of a restored villa in ancient Pompeii a short time ago. A master plumber in the party decided to investigate the claims of the guide. He was shown uncovered piping that supplies the fountain with water.

"Well, what do you know about that!" exclaimed the amazed American. "There's a wiped joint in that lead pipe just like my grandfather used to make 75 years ago." It is believed that such joints were in fairly common use among the more wealthy Romans of that period.

To Help You Sell Yourself

To the Editor:

Do you have available or can you tell me where I might obtain necessary information to make a short address on the findings of the relation between plumbing and polio?

I have been asked to address the Kiwanis Club on this subject.

H. S. Overdeer,

Middletown, Pa.

• We have a broad selection of material for use in the preparation of addresses of the type mentioned by Mr. Overdeer. Copies will be available without charge to readers.—Ed.

Can You Top This?

Andrew Anderson, a Californian, was recently hit by three bathtubs while out motoring. According to the list of prize freak accidents for 1948, just released by the National Safety Council, here's how it happened:

Anderson had undoubtedly been warned to watch out for bathtub accidents at home, but never on the busy Monterey highway south of San Francisco. As he passed a plumbing company's truck, the latter hit a bump in the pavement. Three bathtubs bounced off and crashed through the roof of Anderson's car.

He wasn't seriously hurt.

How Many Baths?

Bathing is a human right which takes precedence over property rights, Magistrate Frances W. Lehrich ruled recently in New York. In other words, a landlady should not turn off the hot water while her tenant is in the middle of a bath, according to Brooklyn's only woman magistrate.

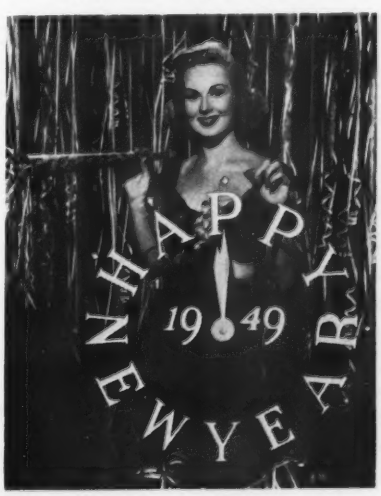
Sitting in Flatbush court, Magistrate Lehrich had before her the case of Mrs. Bella Olsen, owner and occupant of a house on Ditmas Ave. Mrs. Olsen was in court on a summons served on her by Mrs. Prudence Hergenrother, who shares with her son a three room apartment on the top floor of Mrs. Olsen's house.

Mrs. Hergenrother complained that a few days ago, while she was in the bathtub, Mrs. Olsen had shut off the hot water supply. Mrs. Olsen said the water was turned off at the heater, so a journeyman plumber could make needed repairs.

But Mrs. Olsen added that Mrs. Hergenrother seemed to be eternally taking baths, which put a strain on the 85 gal. water heater which serves the three families in the house. Mrs. Hergenrother said she was in the care of

(Please turn to top of next page)

To all Domestic Engineering readers—A happy and prosperous 1949. Industry leaders, in response to a survey just completed by Domestic Engineering, agree generally that 1948 was a banner business year and that 1949 can be even better. See "Review and Forecast Section", pages 87-95. That's Virginia Mayo, Warner Bros. star, in the photo.



Between Ourselves . . .

(Continued from preceding page)
a physician, and under orders to take frequent hot baths.

In the course of this exchange, Magistrate Lehrich got the impression that the landlady and tenant found it hard to get along together, and advised them to communicate, hereafter, by letter, or through an intermediary. The magistrate remarked that a property owner's life is "not all peaches and cream," and that landlords are "the only unit in the body economic whose profit is held down" by government controls. However, she said:

"Landlord has no right to dictate how many baths a tenant may take. Human rights come before property rights, and where they conflict, property rights must yield to human necessity." The case was thus cleaned up.

How to Train Apprentices

To the Editor:

We would appreciate an opportunity at a later date to give you an article for DOMESTIC ENGINEERING on our complete setup of training for the piping trades in the San Antonio area.

We believe we have the ideal arrangement of training for the plumbing, refrigeration, air conditioning and heating trades from the standpoint of having all courses offered in the San Antonio area under the supervision of the same advisory committee.

This has resulted in an exceptionally efficient training system with no "blind alley" courses. The high school prepares for the apprentice level school; the apprentice level prepares for the trade continuation school for journeymen, foremen, etc.

This system has evolved from continuous operation under one head (myself), since 1929, and has certainly saved the day for us since every one has become "learn a trade" conscious.

Our plumbing and heating (including air conditioning and refrigeration) training program is supervised by an apprentice committee composed of masters and journeymen.

About 90 percent of shops in the San Antonio area are on the approved list for cooperative training for their apprentices. All they have to do to get approval is to agree to live up to the joint apprenticeship agreement, which applies reasonably to both union and open-shop conditions, being based on the idea of sound training for all men entering the trade.

Our air conditioning and refrigeration apprentices are taught to install all kinds of appliances, install gas piping, etc. to enable them to work the year around. The slack season in refrigeration servicing has ruined many a service organization where they were trained only in refrigeration.

We believe that our apprentice training program has forestalled many of the ills that beset some of the areas that have used haphazard methods to enlist and train new men. The programs of the day high school, apprentice school and journeyman classes are all under the advisory committee.

W. F. Zettner
Head of Piping Trades Dept.
San Antonio Vocational and
Technical High School

Home at the range with Diana Lynn, popular young motion picture star. Speaking of kitchens, Domestic Engineering has just completed a roundup of kitchen merchandising ideas now being used successfully by its readers. For details on how one of the ideas can help you sell more kitchen remodeling jobs, see the feature—"Pictures Sell Kitchens"—page 99.

• Publication of an article listing apprentice training courses and other schools, appearing in the October issue of Domestic Engineering, has resulted in a number of responses in which readers describe the training work being done in their localities. The letters above and below are particularly significant.

The professional club for pipe trades' students in the San Antonio Vocational and Technical School is named the "Domestic Engineers' Club." Mr. Zettner, in an aside, mentions that the name was adopted by public vote and, of course, is borrowed from Domestic Engineering Magazine.—Ed.

To the Editor:

I just recently completed a ten thousand mile trip across the United States in the interest of public health—checking plumbing and plumbing installations in over 32 states, 1500 feet under the earth in Carlsbad Caves; 14,118 feet elevation on top of Pike's Peak in Colorado; Washington, D. C.; New York; up the coast of Maine to Augusta; then west to the Green Mountains of Vermont, Adirondack Mountains of New York, and on to Chicago where I spent two very busy weeks of research and study in the Cabrini Street and Markham Laboratories.

Before I left California, I made the boast that my apprentices and journeymen would be the best informed men in the West, and I believe that boast will be fulfilled. At the present time, my schedule includes four 8-hour day classes each week and three 3-hour night classes, as well as a class of 28 at Escondido High School on alternate Saturdays. In all, I have 185 apprentices and 25 journeymen.

I am also writing the second and third year apprenticeship training textbooks for the state of California. The program last year turned out 12 journeymen plumbers. This year the number will be approximately 25 which average will be maintained for the future. I believe a careful survey of California will be enlightening. You will find plumbing apprenticeship training in nearly all the vocational schools in the West. San Diego Vocational High School and Junior College is not the only school which is preparing men for the plumbing trade.

Esles Smith, Sr.
San Diego Vocational High School and
Junior College, San Diego, Calif.

Reaching Prospects

By using direct mail, the dealer can be selective, picking only those people he wants to reach—people who may already have indicated an interest in new plumbing, heating or appliances.

An important point in any such program is the source of prospects to be used as a mailing list. The best names might be past customers of the store. Or the prospect file might contain the names of people contacted through special promotions—such as merchandise displays at home shows and county fairs, through guest lists of people who have visited model homes, through the building permit department of local communities, etc. Some dealers obtain names from the city directory and blanket entire neighborhoods at one time.

For an outline of results from a Denver dealer's direct mail program, turn to the feature on page 96.

Modern living

calls for a

Shower Cabinet in the bathroom

So much personal comfort and satisfaction can be obtained at so low a comparative cost that a shower cabinet has become one of the best values in making homes more desirable to owners and prospective purchasers.

A shower cabinet is a natural companion to the other fixtures in the present day bathroom, and is recognized by architects and builders as one of the strongest features for classifying a home as modern in both the higher priced and lower cost brackets.

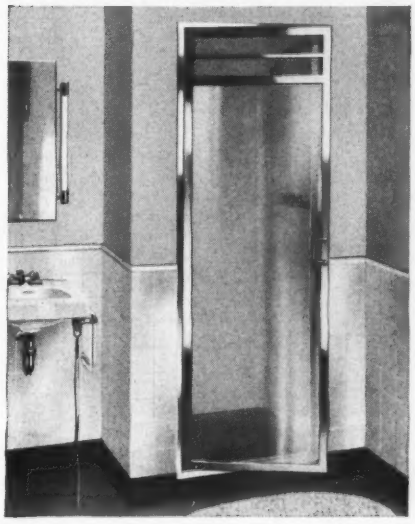
FIAT SHOWER CABINETS

— make houses more saleable.
— make the menfolk happy and are a source of pride to the housewife.
— are in harmony with other modern features in the home that make for easy living.
— add an air of distinction and luxury to the bathroom even when lower priced units are installed.

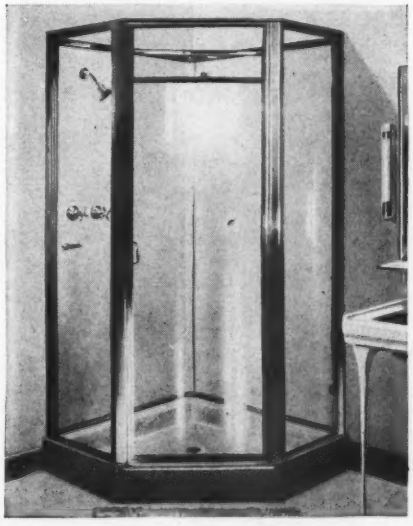
— THERE IS A FIAT SHOWER MODEL TO FIT EVERY BATHROOM —

— the low cost Skipper Shower with Neptune Glass Door.
— the medium priced Cadet Shower with Zephyr Door.
— the highest class shower cabinet ever built, the Commodore, suitable for the finest luxury installation.

Skipper Shower with Neptune Door



Cadet Shower with Zephyr Door



Commodore — 2000-C

A complete catalog with specifications of all Fiat Shower Cabinets is available in Sweet's Architectural File section 24b/1 and Building File section 6a/6 or write for catalog.

Fiat

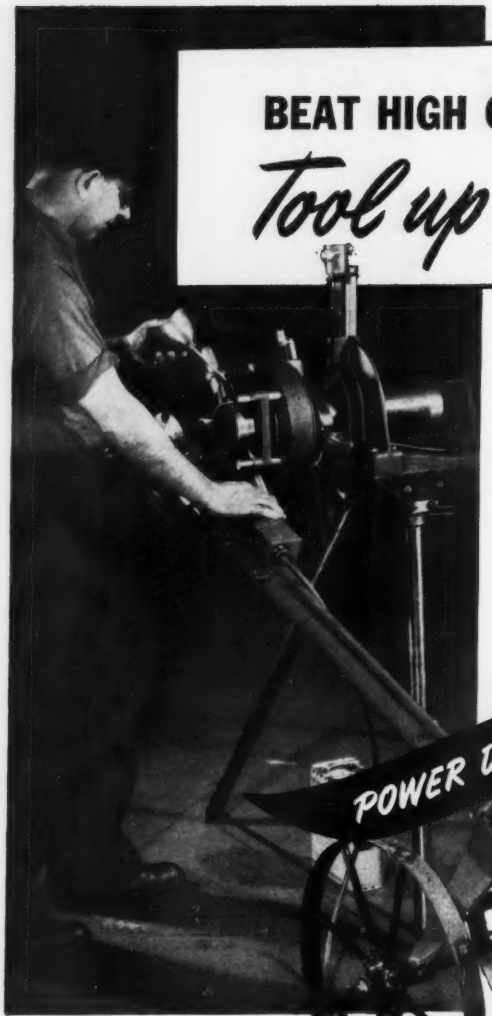
Metal Manufacturing Company

CHICAGO 13, ILLINOIS
LONG ISLAND CITY 1, N. Y. LOS ANGELES 33, CALIF.

In Canada Fiat Showers are manufactured by Porcelain and Metal Products, Ltd., Orillia, Ont.

BEAT HIGH COSTS WITH HIGH PRODUCTION

Tool up with "TOLEDO"



Good tools make a tremendous difference in productivity . . . sending your production UP . . . and costs down. Give your mechanics the tools preferred by thousands of experienced hands . . . specify TOLEDO Pipe Tools and Power Pipe Machines! You will like their simple, sturdy construction . . . compactness and light weight for ease of handling . . . and the smooth, clean-cut, leak-proof threads produced by Toledos. You will like Toledo performance—in hand tools or power equipment—to do the work easier . . . faster . . . and reduce costs! The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office, No. 2 Rector Street Building.

POWER DRIVES

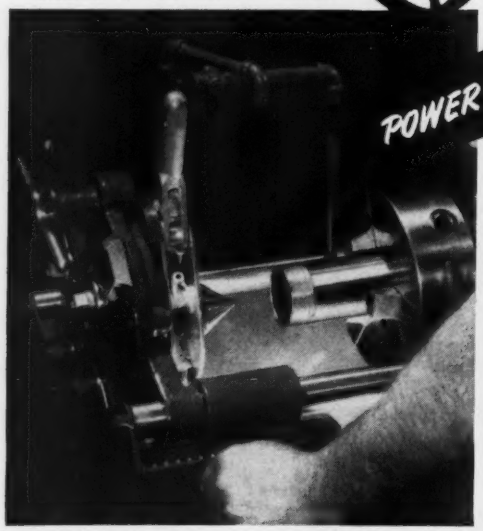
One man using a Toledo Portable Power Drive with Toledo hand threading Tools can cut a 2" thread in 18 seconds, 4" threads in less than 2 minutes.

RELY ON THE LEADER

TOLEDO

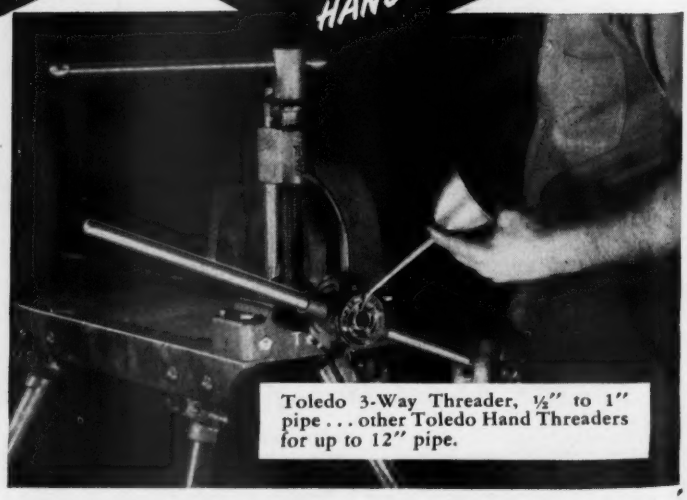
FOR PRECISION PIPE TOOLS

POWER THREADERS



Toledo No. 999 Power Pipe Machine threads 2" pipe in 22 seconds, cuts off 2" pipe in 10 seconds. Portable . . . ½" to 2" pipe incl.

HAND THREADERS



Toledo 3-Way Threader, ½" to 1" pipe . . . other Toledo Hand Threaders for up to 12" pipe.

Reports of the Day Help

Our Industry

Forecast the New Year

REPORTS of business conditions at year's end throw some light upon the currents and trends which will affect our industry in 1949. As we went to press, there were the following:

Report. Investment in plants and equipment by all industries this year will reach a record total of $18,840,000,000.00. Fourth quarter spending will be a little over $5,000,000,000.00. Significance is that manufacturers, including those in our own industry, are tooled up to do a better job of producing than ever before. This fact is borne out by the manufacturers' statements to be found on following pages.

Estimate. U. S. Department of Commerce predicts total construction volume of $18,750,000,000.00 next year as against $17,775,000,000.00 for 1948. Residential building is expected to decline from $7,100,000,000.00 to $6,500,000,000.00. Such classifications as hospital and institutional, social and recreational, hotels, educational, and utility construction are expected to increase and more than offset the drop in residential building.

Report. The late-fall pattern of building starts did not, this year, show a contra-seasonal increase as it did in 1947. Instead, construction starts followed the usual seasonal decline. Late-year figures, therefore, do not appear to supply a satisfactory index of next year's activity.

Report. Wholesalers of durable goods showed sales increases in October, over September, in contrast to the sales of soft goods. However, the increase was somewhat less than the usual seasonal rise. Lumber and building material wholesalers had October sales slightly in excess of September.

Estimate. The Producers' Council says the number of apprentices in the construction industry will be 16 percent higher at the start of 1949 than at the beginning of 1948. Insofar as this increase applies to the plumbing and heating industry, it means a more available labor supply permitting contractor-dealers to handle more remodeling and modernization work.

Viewpoint. The National Association of Creditmen expects higher bad debt losses in the year ahead, but the group thinks that these bad debt losses, when compared to increased sales, will not be out of hand or a serious threat to earnings.

Prediction: Spokesman for one of the largest manufacturers of air conditioning, at his company's annual meeting, estimated that air conditioning sales in 1949 will top 1948. The growth, he said, will be in both comfort installations and industrial jobs.

Report: The Department of Commerce disclosed that personal income hit a new peak annual rate of $215,600,000,000.00 in October, an increase of $700,000,000.00 from the preceding month. It was also noted that there has been new accumulation of private savings, reversing a downward trend.

Report. Production of building materials during September was the second highest on record, being exceeded only by August. The production drop in September from August was somewhat less than the normal seasonal decline.

On the whole, and in view of the above, a balanced optimism would appear reasonable for 1949, now that post-election adjustments have been made.

Leaders Say . . .

'1948 Was Banner Business Year'

This year of 1948 was the biggest in history for the plumbing, heating and air conditioning industry. While exact estimates are lacking it is apparent that this industry—which, in "good" prewar years had a billion-dollar volume—sold more than three billion dollars worth of equipment, at installed prices, in 1948.

Hundreds of leading manufacturers and wholesalers, reporting to DOMESTIC ENGINEERING for this issue, told of business increases of 20 percent and more for 1948 over 1947—increases which are, of course, a reflection of the business of contractor-dealers and the field as a whole.

And for 1949? The indications, which are brought out in the statements on following pages, make the point that 1949 *can be* even a better business year than 1948.

New construction is expected to increase 5 percent in dollar volume next year, according to the Department of Commerce, with physical volume being about the same as 1948. New home building will slump slightly from 925,000 units to 875,000 units, but this deficit will be made up by more construction in hospitals, schools and commercial establishments.

If manufacturers can produce more fixtures, pipe and materials, it is apparent that contractor-dealers can, through more merchandising, move such surpluses into the field of modernization. This is the point which has been emphasized in recent issues of DOMESTIC ENGINEERING. This is the point stressed by many industry leaders today in the comments which follow. And this is why we say that 1949—given more production—can be even a better business year than banner 1948.

Wholesalers Report

AS PART of the annual survey, DOMESTIC ENGINEERING asked wholesalers in all sections of the nation to report on their volume for 1948, as compared to 1947, and their expected volume for 1949 as compared to 1948.

They reported that their 1948 business increased an average of 13.5 percent over 1947.

These same wholesalers expect their 1949 business to be almost as good as banner 1948. The average of all returns was an anticipated decrease of 1.1 percent.

The comments accompanying the questionnaires provide indications of some of the trends expected.

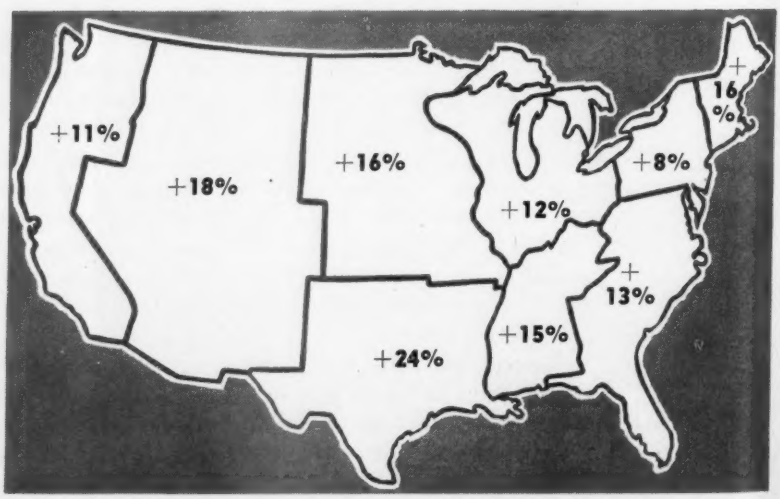
A San Francisco wholesaler writes: "Our anticipation is that 1949 will maintain a high volume; however, the competitive stage is already established. Our immediate territory is in a very healthy position but adjacent territories are being allocated in excess of requirements and, as a result, are dumping bathtubs, brass, etc. in this territory so as to enable them to maintain their allocations of closets and other vital materials."

A Michigan wholesaler writes: "If stockpiling by government is not too severe most prices will hold for the first half and some will soften as competition is now holding prices on material that was scarce."

From Missouri, a wholesaler writes: "We look for about same conditions in 1948 as we have had this year. Some lines such as pipe, soil pipe and vitreous ware will be scarce."

From Pennsylvania: "I believe this is the year to prove whether it was right to actively advertise for two good business years to prepare for dark days ahead. If it pays off the way I predict it will, I'll be quite happy."

(Please turn to page 158)



Wholesalers reporting on 1948 sales showed a general advance over 1947 as indicated on the area-by-area map at right. See text for national average.

Leaders See . . .

'1949 Can Be Made Even Better'

Manufacturers Report . . .

To obtain the business viewpoints published below, DOMESTIC ENGINEERING asked five questions of a selection (not all) of the leading manufacturers in the plumbing and heating industry.

These questions were: 1. Do you anticipate that your 1949 production will exceed 1948, and by what percentage? 2. Have you expanded your facilities, or do you expect to expand them? 3. Are you planning an enlarged or more aggressive promotion policy for 1949? 4. Are you planning any new or improved products which will expand or modify your line? 5. What are your general comments?

Typical early replies are published below:

Water Systems

1. We anticipate that while our 1949 production could well exceed our 1948 production, we do not anticipate there will be sufficient increased demand to justify a higher production schedule.

2. Our production facilities have been expanded to a very considerable extent during the past two years and at the moment we are not anticipating further expansion. We believe our facilities will be sufficient to take care of all potential volume for 1949.

3. We are planning on a very aggressive promotion policy for 1949 not only insofar as our own company activities are concerned but anticipate cooperating in an industry program to promote sales of water systems by special activities throughout the year.

4. We have not made it a policy to announce modifications or improvements in products or new products until such items are ready for production.

5. Concerning 1949 comments we believe there is going to be a continued heavy demand for water systems, pumps, and similar items both for new construction and remodeling particularly in the rural market. We do believe that 1949 will require renewed selling activity on the part of manufacturers, distributors and dealers, all of whom need to rejuvenate their sales forces and really get back to the business of selling the products which they manufacture and distribute.

C. D. Leiter, Sales Manager,
The F. E. Myers & Bro. Co.,
Ashland, Ohio

Heating Specialties

(Telegram) Anticipate continued expansion of our business in 1949 based upon building forecasts and our aggressive merchandising. Sales of our new products are steadily increasing, such as Taco-Vents, Taco-Matic valves and Paneltrol valves.

Have held many meetings throughout 1948 and have scheduled a number of meetings for the next few months with wholesalers and trade associations showing our sound slide films, "The Four Aces" and "Better Heating—Better with Taco."

We believe that aggressive selling and promotion in 1949 will result in a banner year in the sale of Taco products for radiant heating systems.

Joseph R. Murphy, Vice President,
in Charge of General Sales,
Taco Heaters, Inc., New York City

Full Lines

American-Standard will enter 1949 with greatly enlarged manufacturing facilities, increased personnel, and intensified advertising and sales promotion program.

Many of our plant improvements and additions are already beginning to bear fruit. Our new pottery at Torrence, Calif. is nearing full production on vitreous china plumbing fixtures and our new brass plant at Richmond, Calif. is now producing thousands of brass fittings a month. In addition, we are negotiating for a former war plant at New Orleans which we plan to convert into a large pottery.

These plant additions, when coupled with a large number of major improvements to existing plant facilities, will help greatly in supplying present high market demands for vitreous china and other critical products.

However, despite this extensive plant building program, we at American-Standard feel that 1949 will see the return of more aggressive selling in our industry at the manufacturing, wholesale and retail levels.

To this end, we have decided to step up our sales and advertising program . . . considerably above its present high level.

This means more American-Standard salesmen in the field. It means a larger national advertising program based upon new hard-hitting advertisements. It means increased advertising to architects, builders, and special institutional fields. And it means the continuation and expansion of our merchandising activities.

In merchandising, especially, we feel that great progress is being made. The astonishing increases being shown in the use of our local advertising, direct mail, dealer identification, literature, and product display services are a healthy sign. For they indicate that the retail heating and plumbing contractors are keeping pace by building modern stores and developing sound local promotions—following-through on our national programs.

There will be several new and improved products announced by American-Standard in the forthcoming months.

Through the successful creation of desire for our products, and through aggressive selling, we believe that 1949 will be another successful year for the heating and plumbing industry.

Theodore E. Mueller, President,
American Radiator & Standard
Sanitary Corporation, Pittsburgh

Pipe Tools

Responding to your letter of December 8th, while we have greatly increased our 1948 production over any previous year, we expect to show a still greater increase in 1949. Just

(Continued on page 90)

Annual Review and Forecast

(Continued from page 89)

what this increase may be we cannot tell at the present time. We have within the past year added many new production machines and will add many others as rapidly as we can through 1949. We expect a continuation this next year of the heavy demand for Toledo products. We have had relatively few cancellations and have a continued heavy flow of orders from our distributors.

At the proper time we will expand our advertising and sales campaigns.

While we have several new products on our drawing boards, we do not expect to do anything further with them at present. Toledo tools seem to meet the needs of the trade so well that we question the advisability of producing any new items now and thus interfere with our production schedule. The most important thing facing us is to take care of the orders we have from our distributors as rapidly as possible.

We fully expect a continuation of good business through 1949, providing our national administration does nothing to upset the confidence of the American public, and much depends on that.

H. A. Mikesell, Vice President, The Toledo Pipe Threading Machine Co., Toledo.

Oil Burners

(Telegram) We expect some production increase in 1949 over a satisfactory 1948. Manufacturing facilities were increased during 1948. Our sales program will be more aggressive. Will have new burners ready for Spring promotion. Building in most categories, we believe, will be good next year and for several years.

O. K. Gipple, Sec.-Treas., Nu-Way Corporation, Rock Island, Ill.

Plumbing Specialties

(Telegram) Josam is looking forward with confidence to a year of greater opportunities in the plumbing and building fields. We have spent over half million dollars to expand and improve our production facilities to meet demand. Continuous and enlarged program of promotion through all advertising media will aim to develop more sales for plumbing contractors in new markets and on new products to be introduced. There are limitless opportunities for all of us to serve the public with products that provide greater comfort, greater convenience and higher standards of health in the home and on the farm, in the school and in the factory, and the plumbing industry has become far better equipped to meet these needs in the coming year than ever before.

Josam is going forward with an industry that has a great past and a still greater future beginning as of now.

Leo N. Newman, Vice President, Josam Manufacturing Co., Cleveland.

Plumbing Products

In a general way, we are reasonably optimistic regarding the volume of business we will receive during 1949. In our branch of the industry, production is determined by the amount of sales.

We have expanded our facilities to some extent and this includes installation of the finest available factory equipment for the manufacture of products in our line.

We do plan to continue with an aggressive sales promotion policy which will include advertising having appeal to our customers (we hope).

We do believe that contractor-dealers have only scratched the surface with regard to the vast opportunity for up-to-date merchandising of plumbing and heating products to the general public. Your publication cannot emphasize the need strongly enough. Jim Lamont, General Sales Manager, The M. S. Little Manufacturing Company, Hartford, Conn.

Steam Heating

(Telegram) We anticipate 1949 production to exceed 1948 by at least 5 percent.

We are expanding our facilities for increasing line and potential volume. We have extensive plans for increased aggressive sales promotion policy for 1949 including advertising, point-of-sale helps, and direct sales contacts. We are improving some products and planning new ones in the industrial and heating fields. We expect 1949 to be a better year than 1948.

Where some types of habitation building will decrease, this will be taken up by increased institutional building construction. Expect continuous program of remodeling and particularly an increased activity in hospital and school buildings.

E. J. Ritchie, Vice President in Charge of Sales, Sarco Co., Inc., New York City

Shower Cabinets

(Telegram) In spite of the critical situation with regards to sheet steel, we expect our 1949 production of shower cabinets to equal the production of 1948. In view of the above, we have decided to follow a conservative policy in expanding our production facilities. We are happy to announce that plans for the improvement of our products are well under way and can be expected to materialize early in the Spring of 1949.

Stanley E. Nilson, President, Fiat Metal Manufacturing Co., Chicago, Ill.

Plumbing

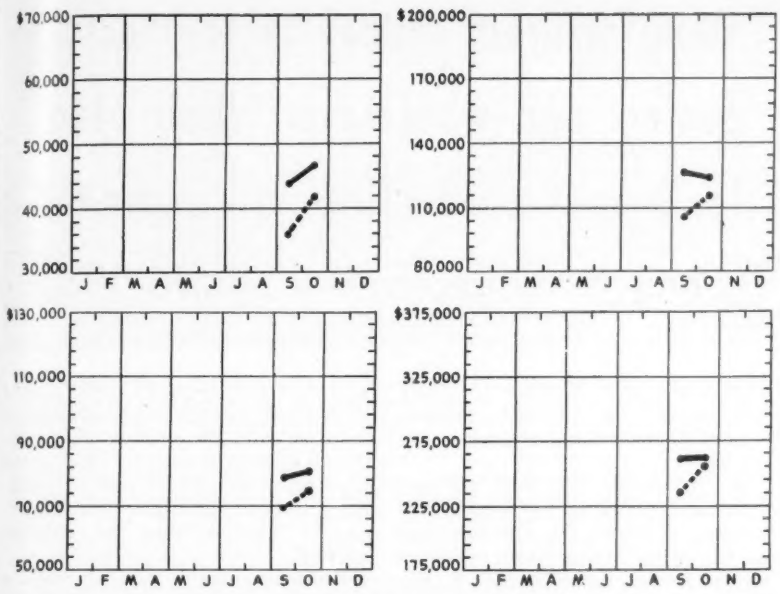
We are very optimistic about business for the next few years. We think there will be changes in the type of business that will be available but we expect that there will be enough to keep everyone in the industry busy.

We expect that our 1949 production will substantially exceed our 1948 production but it is impossible to give any definite percentage figures. We have expanded all of our facilities tremendously over the last few years and feel that we will be in good position to do a good job for our customers in taking care of the volume of business we expect from them.

We are increasing our advertising and sales promotion and plan to do a more aggressive job than ever.

We always have some new and improved products coming along in our production, but there are no major

1948* Good Business Years *1949



The charts above present a fairly comprehensive picture of wholesalers' sales for September and October—last figures available—as compared with the 1947 sales of the same typical wholesalers. Solid lines represent 1948; dotted lines 1947. It is noted that the average sales of all groups (broken down by annual volume) exceeded the corresponding months of 1947. The rate of gain, however, slackened in October as if in anticipation of the seasonal slump in construction. When the figures in chart (which are based on dollar volume) are adjusted for the inflationary factor, it is found that 1948 sales still were higher, in terms of physical volume, than 1947.

changes in the line contemplated at this time.

While we expect a lot of the same kind of home building that we have had over the last year, we think there will be quite an increase in building in the school, hospital and commercial field. We, also, feel that there will be a tremendous amount of remodelling.

D. J. Crane, Sales Manager,
Eljer Co., Ford City, Pa.

Cabinets

There are so many factors affecting our picture that we could not answer your several questions with any degree of certainty.

For example, we still have a terrific backlog and as our raw material situation improves we feel that we should equal our 1948 sales.

We say this because we know that so many of our customers have been obliged to take competitive merchandise because of our inability to supply the demand.

We feel that the orders which we were obliged to refuse, or orders which were canceled because of non-delivery due to material shortages will offset any slight decline in demand.

L. F. Wilmhoff, Mgr.,
Bathroom Cabinet Div.,
The F. H. Lawson Co.,
Cincinnati

Steel Boilers

Kewanee Boiler Corporation expects that 1949 production will be approximately the same as 1948 if the steel situation remains about the same as it has been in 1948.

We have expanded our facilities during the last year and a half and have modernized a substantial proportion of our machinery which permits us to build better products without an increase in cost.

We expect to continue our past policy of aggressive advertising and promotion. We are continually working on new and improved products to meet changing conditions in the heating industry.

We expect that the heating contractor will have an excellent year. The only danger we can see is the danger of pricing the industry out of the market. We expect to maintain our present prices unless our cost of steel is increased to an extent that cannot be absorbed without an increase in our price or unless the cost of labor by a fourth round wage increase is more than we can absorb.

We believe that every division of the construction industry should make an honest attempt to hold prices where they are.

R. B. Dickson, President,
Kewanee Boiler Corporation,
Kewanee, Ill.

Heating Specialties

We do not anticipate that 1949 production will exceed 1948. We hope that it will not be lower, but are confident that it will not be higher.

During 1948 we pursued a very aggressive promotional policy and expect to carry the same policy over into 1949.

We have several new products under way, most of them still at the drawing board stage.

It is our belief that business will not improve until labor quits making increased wage demands, making building prices skyrocket.

James Emmett, Jr.,
Sales Manager,
Jas. P. Marsh Corporation,
Skokie, Ill.

Pumps

1. We anticipate our 1949 production will exceed 1948 by at least 10 percent.
2. We do not have to expand our facilities to take care of the above increase.

(Continued on page 92)

Consensus indicates optimism for 1949, tempered by possibilities of material shortages and a realization that manufacturers and dealers must push sales. Read first-hand viewpoints of leaders

(Continued from page 91)

3. We are planning a more aggressive promotion policy for 1949 which, of course, includes items such as advertising, point-of-sales helps, etc.

4. We have on our drafting boards, plans for several new pumps which we expect to put on the market in the year of 1949.

5. We are of the belief there are very good opportunities for DOMESTIC ENGINEERING contractors and dealers in increasing their volume of business due to the increased building activity, especially among hospitals and schools.

N. H. Weil, President,
Weil Pump Company, Chicago.

Plumbing Specialties

1. We anticipate that our 1949 production will exceed our 1948 figures by a substantial amount.

2. We have not expanded our facilities, as we are in good shape to take care of a large increase in business due to a complete modernization of our foundry in 1946 and 1947.

3. We are planning a considerably larger merchandising program for 1949.

4. We do not have any new products in mind at present but are concentrating on improving some of our old ones.

5. We think that general business will be less in 1949 than in 1948. In our particular field, however, this down trend will be considerably offset by substantial increases in institutional building, such as hospitals, schools, etc.

Howard F. Lewis, Sales Manager,
Wade Manufacturing Company,
Elgin, Ill.

Relief Valves, Etc.

We naturally, see these various reports put out by such organizations as F. W. Dodge, who have predicted a lower volume of small home building for 1949, compared with 1948, and other similar forecast along this line. With a lower volume of small home building, we would naturally be affected, but in view of forecast that has been made, we will consider ourselves fortunate if 1949 shows a similar volume of business as to 1948.

Because of the feeling in our particular line of manufacture, that there will not be the potential market for '49 that has existed in '48, we are planning new and improved products, which we expect will be available early in '49, and in that manner, bring our volume of business up to, or in excess, of this current year.

Manufacturers report to contractor-dealers and wholesalers their plans for bigger production and improved products. Objective—a record 1949

When these new products are ready and available for shipment, we shall naturally increase our promotion activities.

We understand that there has been a considerable amount of small home building in which the plumbing and heating installations have not been completed because of scarcity of pipe; that might offset the lack of new buildings started in '49.

R. H. Hubbard, Treasurer,
The Beaton & Cadwell Mfg. Co.,
New Britain, Conn.

Grease Interceptors

1. Do you anticipate that your 1949 production will exceed 1948? If so, by what percentage? Yes, by at least 40%.

2. Have you expanded your facilities to take care of potential volume? Yes.

3. Are you planning an enlarged or more aggressive promotion policy for 1949, including such items as advertising, point-of-sale helps, etc.? Yes.

4. Are you planning any new or improved products which will expand or modify your line in 1949? Yes.

5. We believe that the construction of additions to present industrial plants and that new construction in the industrial and institutional fields, including hospitals, will be considerably expanded during the coming year.

F. A. Delano,
Vice Pres. and Sales Mgr.,
Norman Boosey Manufacturing Co.,
Div. of American Skein & Foundry Co., Chicago

Cements, Chemicals

Our general opinion goes along the following pattern. If there are no international incidents to upset civilian building and repair and if employment by industry in general is maintained at the present high rate we feel that the building industry should show a gain of about 10 to 15 percent over 1948. There are a few soft markets in the country at this writing. However, I feel these are more or less going through an adjustment period. Building in these localities has been in much greater volume than the national average.

If the above holds true, we feel our production should exceed 1948 by some 25 percent. This is based on estimated 10 to 15 percent general business gain plus gain we intend to make through new jobbers selling Whitlam specialties. We are slowly, but steadily, expanding production facilities to be in line with our general gain in volume.

Our promotion policy for '49 will be along the same, very successful, pattern used in the past, but stepped-up in tempo through more sales representation, greater use of magazine and direct mail advertising.

We have two new products that have been in the process of development for some time that may be placed on the market in '49. These will be ready to go as soon as production facilities and proper promotion can be made ready. We are at present in the process of redesigning several of our lithographed packages and these should appear late in the first-quarter of '49.

J. C. Whitlam,
J. C. Whitlam Manufacturing Co.,
Wadsworth, Ohio.

Heating Systems

1. We shall feel very fortunate indeed if our total business equals that of 1948, but if there is no falling off

1948 Good Business Years *1949*

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Key government agency, from the viewpoint of materials, is the National Security Resources Board. The group shown here, representing the plumbing fixtures industry, met recently in Washington under the chairmanship of John P. Kottcamp, director of NSRB's construction materials division. Recommendations of the informal task groups later will be reviewed by formal industry-wide advisory committees before final adoption by the Board for transmission to the President for action. Those attending included (left to right): C. W. Farrar, Richmond Radiator Co., New York City; D. D. Couch, American Radiator and Standard Sanitary Corp., Pittsburgh, Pa.; G. E. Hoffman, Crane Co., Chicago, Ill.; Radford E. Crane, Eljer Co., Ford City, Pa.; Walter R. Crowe, deputy director, construction materials division, NSRB; Mr. Kottcamp; Iler J. Fairchild, Vitreous China Plumbing Fixtures Assn., Washington, D. C.; E. O. Brady, Briggs Mfg. Co., Detroit, Mich.; Stanley S. Backner, Universal Sanitary Mfg. Co., Camden, N. J.; H. J. Held, Rundle Mfg. Co., Milwaukee, Wis., and T. H. Harker, Chicago Pottery Co., Chicago, Ill.

of business generally, we believe that our business will materially increase.

2. We have available facilities for taking care of at least 50 per cent more business than we handled in 1948.

3. We are planning on a greatly broadened program for '49, which will include all of the necessary things if expansion calls. We feel that this will need to be done, even though there is some falling off in sales generally.

4. We have great plans laid for new and improved products in '49, products that will materially aid the wet heat industry.

5. Our general opinion about 1949 for DOMESTIC ENGINEERING contractor-dealers is that if they will use the tools that they have and conduct the right programs on new and remodeling work, especially remodeling work, there will be more business for all of them than they can conveniently handle.

There is a great rural market but not enough educational work has been done to show this market the expanded possibilities that are available. There are, of course, many city folk who now live in the country, who have carried the message to the rural population by actual installations, and the housewives in the country are as thoroughly envious of the nicer things in life as the city housewives. The story is bound to catch on, with good results to all.

We still believe that positive thinking and selling can do a great deal for our business individually and for the country as a whole.

R. E. Moore, Vice President,
Bell & Gossett Company,
Morton Grove, Ill.

Convectors

(Telegram) Herman Nelson Corporation plans for 1949 include increases in both production and sales promotion programs. The company has just completed a 56,000 sq ft addition to one of its manufacturing plants. This will provide a considerable increase in production capacity. At a recent meeting of the Herman Nelson distributor advisory committee, plans were made for an extensive sales promotion program for 1949. An important feature of this program is a comprehensive plan for training wholesaler personnel in the marketing and application of Herman Nelson products. The program will be placed in operation at the very start of the year.

Robert W. Nelson, Vice President,
The Herman Nelson Corp.,
Moline, Ill.

Pipe and Tube

I am entirely in agreement with most of the people in the industry, inasmuch as I believe that the year of 1949 will see a tremendous erection of homes to meet what I believe is our number one shortage today. This program of homes can, however, be effected by the shortage of materials and extremely high prices. Ample proof that price is an important factor in home construction is the available real estate reports which show a decline in the sale of homes in that price range over $15,000.00 and I believe that any community planning a housing project should make a thorough study of the requirements of their particular communities.

So far as our 1949 production is concerned, we are planning on a marked increase. The percentage of increase, of course, depends entirely upon the availability of raw material. During the year 1948 we completed several expansion programs which will put us in a better position to fulfill the demands of our customers. As demand increases, we are prepared to increase our production further with the addition of several new phases relative to our business.

In conclusion, and summarizing the contents of this letter, I am highly optimistic for the year 1949, and feel that if raw material is made available and prices are kept within the reach of the average man, this should be the biggest year in the history of our industry.

J. F. Murray,
Sales Manager,
Reading Tube Corporation,
New York City

Plumbing Fixtures

In our particular line of business, we do not look for any great increase in 1949.

In surveys made by our salesmen, we find that jobbers' stocks of our material are in fairly good shape. We do not attach too much importance to the dollar volume of business, but rather stress the pound volume.

We feel there is a back log in remodeling and modernization, but in many cases the savings earmarked for this work are gone.

We hope that 1949 will show a continued increase in the number of retailers' show rooms in our business. We feel this to be of prime importance, insofar as educating the jobber to buy plumbing materials from the plumber.

Concerning our price structure, we

(Continued from page 93)

are hoping to keep our prices firm, and feel that due to new machinery and increased labor efficiency, this can be done.

P. C. Bulkeley, Sales Manager,
American Sanitary Manufacturing Co.,
Arlington, Ill.

Cast Iron Boilers

(Telegram) The National Radiator Company expects to maintain production of its full line of heating products through 1949 at the rate established in 1948. We have improved and are continuing to improve and expand our plant facilities. We have planned and will soon inaugurate more aggressive sales promotion policies which include re-educational programs for our field forces. We have a number of new and improved products to offer the trade through our wholesalers.

Even though individual essential unit construction may drop somewhat in 1949, the demand for institutional facilities and multiple dwelling projects is so tremendous that we believe the overall construction totals will be maintained. Selling is the order of the day and we are pleased to note the constant improvement in showrooms and selling methods of our contractor dealers nationwide. Our potential was never greater and the industry should have no fear for the future.

Carroll M. Baumgardner, Vice Pres.,
The National Radiator Co.,
Johnstown, Pa.

Heating Units

We are not quite as optimistic regarding building forecasts for 1949 as perhaps some of the other sources you have contacted. This does not mean that we necessarily are looking for any appreciable drop in sales volume; on the contrary, we expect increased sales during 1949.

To fill the gap, if any, which may be created by a building shrinkage in 1949, we are planning to concentrate more of our efforts toward the vast replacement market. We know there are unlimited opportunities in every territory for dealers who aggressively sell replacement units and we hope to steer the thinking of our customers towards the great potentials open to them.

Our plans for the coming year include stepped-up sales promotion and advertising programs and introduction of a number of outstanding new units in our line. We intend to do our utmost to continue making Mueller Climatrol one of the most desirable and profitable lines of heating and air conditioning equipment in the industry.

We are confident we shall be able to procure sufficient raw materials to uphold the production end of our increased sales program. Our plant facilities, of course, are ample for increased production.

If we and our customers are to enjoy greater prosperity in 1949 it is going to require extra effort, extra work. We have started already.

H. P. Mueller, President,
L. J. Mueller Furnace Co.
Milwaukee

Plumbers' Brass

No. 1. We anticipate about a 5 percent to 7 percent increase in business in 1949 over 1948.

No. 2. We have expanded our facilities in various ways to take care of an increased volume and make quicker shipment.

No. 3. Yes, we are planning more aggressive promotion policy for 1949, with some new departures, such as group talks throughout the nation to interested groups, by means of pictures and sound slides.

No. 4. We are planning improved products, but we cannot say that they are new, although, in all probability, there will be several new items during the year.

No. 5. We believe it should be a very good year for contract dealers, particularly in new construction. We cannot break this down very much as to classes, such as schools, hospitals, etc., but we do look for a greatly increased use of our product, Streamline copper pipe and fittings, in the smaller homes.

J. R. Wightman, Advertising Manager,
Mueller Brass Co.,
Port Huron, Mich.

Heating Systems

(Telegram) The Trane Company looks forward hopefully and optimistically to the new year, but we admit an inability to evaluate the various confusing business-outlook criteria and indices, complicated as they are by world conditions and domestic political possibilities. Optimistically, however, we have this year opened the first unit of our new Scranton, Pa. plant, covering 70,000 sq ft, for production of type A convector-radiators for the eastern market. Our surveys show this market to be extensive. If business conditions will permit, this market should continue at peak for several years. We have geared the Scranton plant for peak production in 1949. We have announced for 1949 our new ductless UniTrane air conditioning system for multi-storied, multi-roomed buildings, and shortly will announce another important new product.

Promotionally, we shall continue full speed ahead with advertising, point-of-sale helps, etc. As of January 15, 1949, we are adding home-office engineering training class students to our field sales force, which, with other additions recently made, represents an increase of approximately 15 per cent in field office personnel.

Don C. Minard, Exec. Vice Pres.
The Trane Co.,
LaCrosse, Wis.

Full Lines

(Telegram) Relet December 9, following answers to your queries. 1. Yes. Five to ten percent. 2. Not required. 3. Will continue advertising campaign with aggressive product promotion. 4. Yes. Some product improvements. 5. Year 1949 good business but keener competition all appliances.

C. V. Coons, Vice President of Sales,
Rheem Manufacturing Co.,
New York City

Boilers, Radiators

(Telegram) It seems probable that 1949 will see some small setback in residential construction which should be offset by remodeling and replacement. Large hospital, school and municipal requirements will also be a major factor in building prospects. Production will be planned to demand and, while increased facilities are required in some items, others are already fast filling inventories to a point satisfying over-all demands. As a consequence, individual sales success will depend upon merchandising new products with accompanying aggressive advertising and sales promotional effort. 1949 should be a good year for the heating industry though hampered by some supply shortages.

V. W. Blackney, Sales Manager,
U. S. Radiator Corporation, Detroit

Plumbing Specialties

(Telegram) Relet seven questions in your order. 1. About the same number. 2. No number. 3. Yes. 4. Yes. 5. We are primarily interested in residential building which we

Associations Report Viewpoints

Oil Heating

Oil-Heat Institute of America now estimates a probable grand total of 450,000 power-driven oil burner unit sales during 1948.

This sales volume is somewhat under the 500,000 sales we originally predicted for the year, but considerably better than estimates made during the height of the tight fuel supply situation last spring. Sales during the first six months were only 177,000 units, reflecting public fear of inadequate oil supplies. During the latter half of the year, however, when the flood of supply assurances from oil companies began to roll in, sales of oil burners came to approximately 283,000 units and this rate is continuing.

Our prediction for the 1949 market is approximately 550-600,000 units, an increase of from 18 to 25 percent over 1948 in unit volume and an increase of from 25 to 35 percent in dollar volume.

The disparity above between unit and dollar sales volume percentages is not predicated on price increases but rather on the present oil burner industry trend to factory built boiler-burner or furnace-burner combination units, thus raising the overall unit sales cost but resulting in a less expensive and more efficient home heating installation.

I would like to point out that the 550-600,000 figure does not represent the maximum sales public demand will support but rather the maximum production the industry can achieve because of steel supply limitations. Oil supply is *not* a factor in our estimate of restricted production since there is apparently oil to spare for everybody this year and for the foreseeable future.

A. E. Hess, Managing Director,
Oil-Heat Institute of America

Warm Air Heating

Estimated warm air furnace sales for 1948 is 795,000 furnace units. This figure compares with 850,000 units in 1947. We cannot make an estimate for 1949 until more information is available in connection with the Government's projected public low cost housing program of 100,000 units per year for the next five years.

If shortages of raw materials are not too pronounced for 1949, the warm air heating industry should enjoy a bountiful year. With more aggressive sales promotion plans, the opportunities for the replacement and modernization markets are, it seems, almost unlimited.

George Boeddener, Sec.-Treas.,
National Warm Air Heating and
Air Conditioning Assn.

Wholesalers

The sales of plumbing and heating material in this area during 1948 will perhaps exceed the sales of 1947 by fifteen to twenty percent.

Assuming that we have no shooting war but do have a continued armament program and no controls over labor and material, my "guesstimate" for 1949 sales compared with 1948 sales would be a reduction of some 20 percent.

The later part of 1948 has seen a great increase in commercial building and a decline in residential construction. During 1949 commercial will still be considerable with residential gaining some of its lost momentum due in part to increased modernization and remodeling.

Due to the fact that there are a larger number of wholesalers in business today than there were twelve months ago, the individual sales per warehouse will perhaps be reduced more than 20 percent. Inventories are up 60 to 70 percent over a year ago and accounts receivable have increased.

This guess is perhaps as far off as any that you will get, but you asked for it and here it is.

Howard Weddington,
Sec.-Treas.,
Wholesale Distributors
Assn. of Texas

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believe will be nearly as large as last year.

H. L. Baker, Sales Manager,
Mueller Company,
Decatur, Ill.

Oil Burners

(Telegram) (1) Our 1949 production of Oil-O-Matic burners, furnace burners and boiler burner units will exceed 1948 production by 150 percent. (2) Postwar plant expansion plans completed during the past year will permit this production increase.

(3) An enlarged advertising budget will be spent for an expanded national magazine and key city newspaper schedule as well as complete program of consumer literature showroom identification and point-of-sale helps.

(4) New equipment designed to reach down into even lower firing rates and to afford a broader market coverage will be introduced during the year. Some of this new equipment is currently being delivered to dealers.

(5) Small homes construction should hit its stride in 1949. This winter is seeing oil resume its roll as the "abundant fuel." Slowdown of oil heat sales during the past year leaves a backlog of unfilled oil heat wants that will lift 1949 sales to well above the ½ million mark.

W. A. Matheson, Vice President,
Eureka Williams Corporation,
Bloomington, Ill.

Brass Products

We anticipate an increase in our 1949 production over our production of 1948. However, with the variables that must be taken into consideration for 1949 we do not wish to make any prediction as to what percentage our 1949 production will increase.

While we do not plan any physical expansion of our manufacturing facilities, we do expect to continue the improvement of our existing facilities which was started in 1948. These improvements are intended not only to handle our expected increase in volume, but also are intended to round out our improved quality control system.

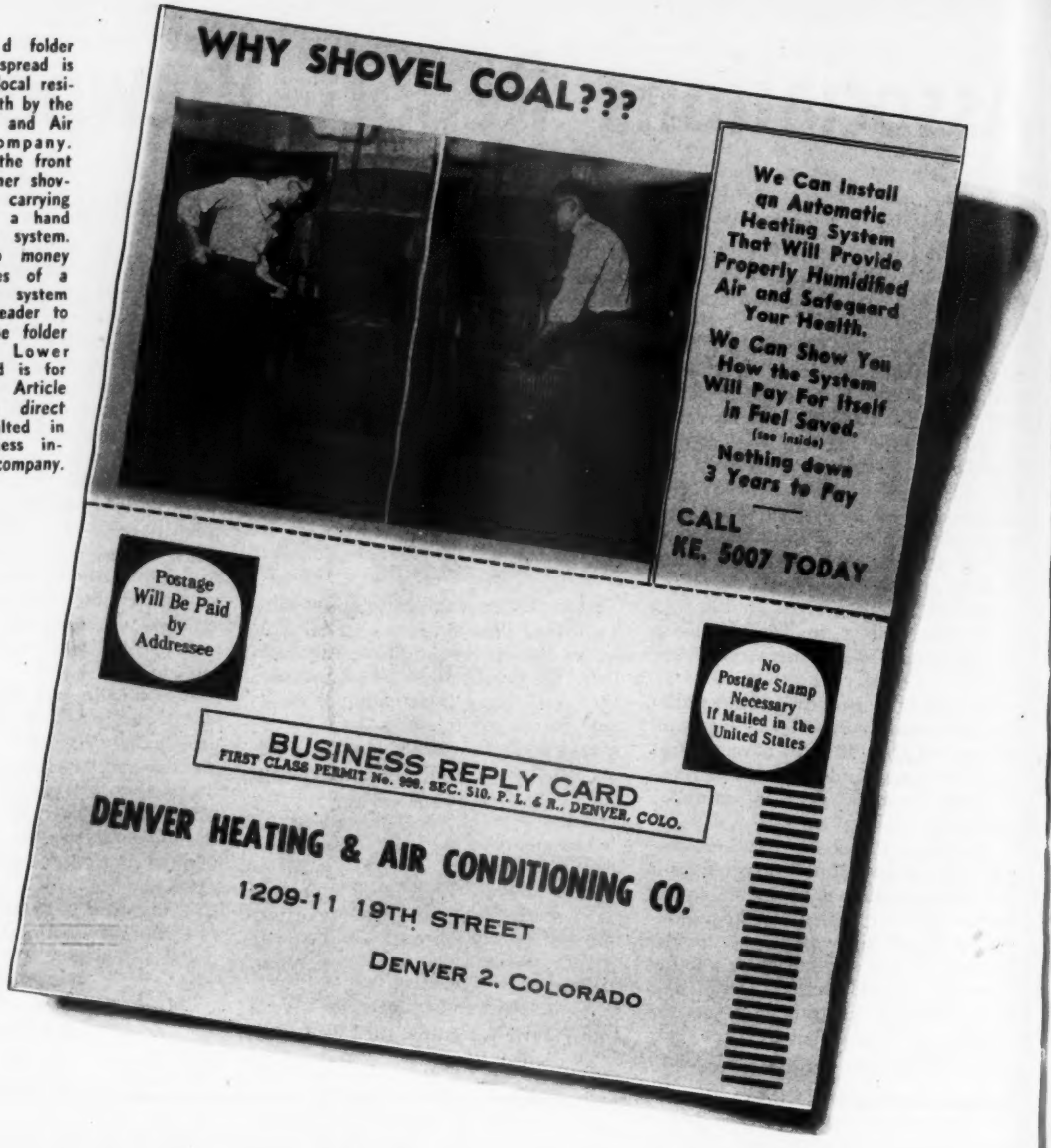
Since we do not manufacture a "consumer" item in the strict sense of the word, we are not planning any increases in consumer advertising or point-of-sale aids. We have increased our advertising appropriation for advertising directly to the trade and to the industrial markets.

We are planning to introduce a number of items during 1949 which will greatly broaden our coverage of the market.

It is extremely difficult to predict the general business conditions for

(Please turn to page 154)

The postcard folder shown on this spread is sent to 20,000 local residents every month by the Denver Heating and Air Conditioning Company. Photographs on the front show a homeowner shoveling coal and carrying out ashes from a hand fired heating system. Copy points to money saving advantages of a modern heating system and leads the reader to the inside of the folder (facing page). Lower half of the card is for business reply. Article tells how this direct mailer has resulted in sensational business increase for the company.


WHY SHOVEL COAL???
We Can Install an Automatic Heating System That Will Provide Properly Humidified Air and Safeguard Your Health.
We Can Show You How the System Will Pay For Itself in Fuel Saved.
(see inside)
Nothing down
3 Years to Pay
CALL
KE. 5007 TODAY
Postage Will Be Paid by Addressee
No Postage Stamp Necessary If Mailed in the United States
BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 990. SEC. 510. P. L. & R., DENVER, COLO.
DENVER HEATING & AIR CONDITIONING CO.
1209-11 19TH STREET
DENVER 2, COLORADO

BUSINESS BUILDER for Heating Contractors

Here's the program of a Denver dealer that has become so sensationally successful—in terms of automatic heating equipment sales —that others will want to see how its done

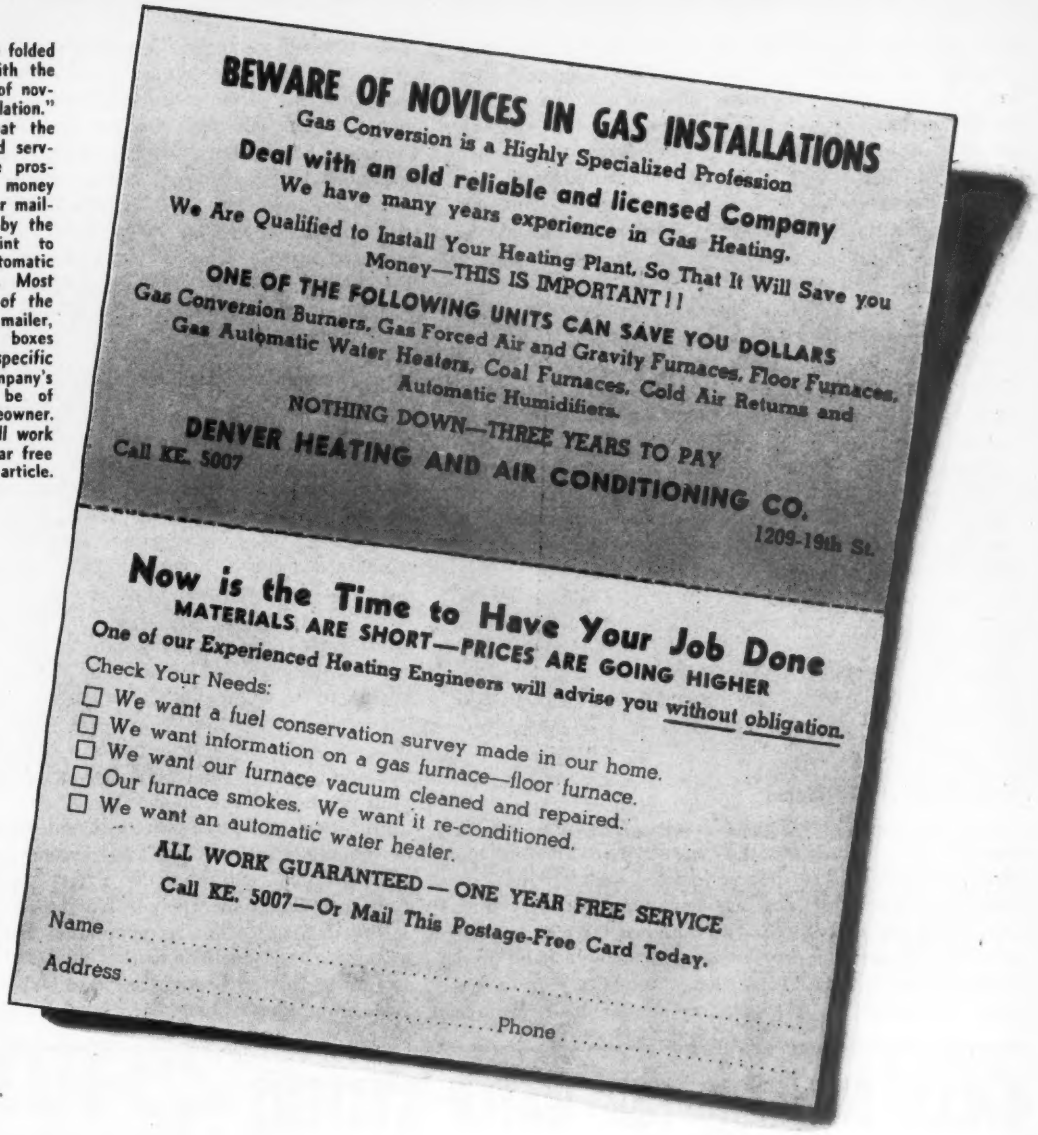
SELLING FUEL CONSERVATION, at a profit, has become the major source of revenue for a pair of DOMESTIC ENGINEERING dealers in Denver. In fact, the program has become so sensationally successful, in terms of automatic heating equipment sales, that other dealers will want to know how it's done.

Dan Bennett and Harold Haumesser, partners in Denver Heating and Air Conditioning Company, turn the neat profit trick by basing an extensive advertising and promotional program on the idea that people want to save money—particularly in view of today's high fuel prices. Success of the program is shown by the record.

In the space of four years, the Denver contracting organization has built from a nucleus of only four workmen to a busy concern employing 20 installation mechanics and six "homeowner salesmen", who make as many as 25 calls per day each on interested prospects turned up by the advertising program.

First, a little background of the company—and then, how the *fuel conservation-promotion* program works.

The interior of the folded card starts out with the warning, "Beware of novices in gas installation." Copy indicates that the firm's products and services can save the prospective customer money on fuel bills. Other mailing pieces in use by the company also point to advantages of automatic coal and oil firing. Most important feature of the card is the return mailer, which lists, with boxes for checking, five specific points of the company's service that can be of value to the homeowner. It emphasizes—"All work guaranteed, one year free service." Details in article.



BEWARE OF NOVICES IN GAS INSTALLATIONS

Gas Conversion is a Highly Specialized Profession

Deal with an old reliable and licensed Company

We have many years experience in Gas Heating.

We Are Qualified to Install Your Heating Plant, So That It Will Save you Money—THIS IS IMPORTANT!!

ONE OF THE FOLLOWING UNITS CAN SAVE YOU DOLLARS

Gas Conversion Burners, Gas Forced Air and Gravity Furnaces, Floor Furnaces, Gas Automatic Water Heaters, Coal Furnaces, Cold Air Returns and Automatic Humidifiers.

NOTHING DOWN—THREE YEARS TO PAY

DENVER HEATING AND AIR CONDITIONING CO.

Call KE. 5007

1209-19th St.

Now is the Time to Have Your Job Done

MATERIALS ARE SHORT—PRICES ARE GOING HIGHER

One of our Experienced Heating Engineers will advise you without obligation.

Check Your Needs:

- ☐ We want a fuel conservation survey made in our home.
- ☐ We want information on a gas furnace—floor furnace.
- ☐ We want our furnace vacuum cleaned and repaired.
- ☐ Our furnace smokes. We want it re-conditioned.
- ☐ We want an automatic water heater.

ALL WORK GUARANTEED — ONE YEAR FREE SERVICE

Call KE. 5007—Or Mail This Postage-Free Card Today.

Name .....

Address .....

Phone .....

During most of '45 and the first half of '46, the firm had run the gamut of local advertising varieties, including newspaper display ads, classified section ads, radio spots, etc. Although effective, early results were not up to the goal set by the aggressive pair, so it was decided to supplement, or perhaps to coordinate, the existing program with something more intensive.

Direct mail seemed to be a logical answer, in the sense that it would help "saturate" prospective customers, who were immediately interested in saving fuel dollars, with information on services offered by the firm. In addition, it would help—along with other promotional efforts by the company—to make local residents *Denver Heating and Air Conditioning Company* conscious—which would pave the way for future selling of prospects not immediately interested in fuel conservation services. Here's how the program works.

After a study of various types of direct mail, the two men determined to follow the Chinese proverb "A Picture Is Worth a Thousand Words", combined with advertising copy. From this thought, a two-piece folder incorporating a business-reply postal card was developed. Several ideas were tested before the firm hit upon its current folder, which is "broadsided" to 20,000 Denver homes every other week in the summer months, and to another 20,000 every month in the winter season.

The folder, as shown, is a two-piece card, printed on both sides. Photographs on the face show a homeowner shoveling coal and carrying out ashes from a hand fired heating system. The question above, "Why Shovel Coal?" is in heavy black type. Copy to the right makes the statement: We can install an automatic heating system that will provide properly humidified air and safeguard your health. We can show you how the system will pay for itself in fuel saved (see inside). Nothing down, three years to pay.

The interior of the card gets down to conversion business immediately, with the warning "Beware of Novices in Gas Installation." Below this, the fact that gas conversion is a highly specialized profession is pointed out, plus

an invitation to deal with an old, reliable and experienced company (Denver Heating and Air Conditioning Company was in business for more than a decade before the current owners purchased its holdings). On this particular card, copy indicates "One of the following units can save you dollars" listing gas conversion burners, gas forced air and gravity furnaces, floor furnaces, cold air returns and automatic humidifiers. Other mailing pieces also in use by the company point out the advantages of automatic coal and oil firing.

Most important feature of the card is in the return mail section, which lists, with boxes for checking, five specific points where the company's services can be of value. These include: 1-We want a fuel conservation survey made in our home. 2-We want information on a gas furnace. 3-We want our furnace vacuum cleaned and repaired. 4-Our furnace smokes—we want it reconditioned. 5-We want an automatic water heater. Advice on each of the points listed is offered *without obligation.* To use the card, which also advises the homeowner that materials are short and prices may go even higher, the homeowner needs only to fill in name and address at the bottom of the card and check whichever topic interests him most. "Checking any one of the needs makes the homeowner a logical prospect," the partners pointed out, "since a smoky or unserviceable heating plant invariably leads to the sale of a conversion burner or to modernization of the entire plant."

How Folder Is Distributed

The folders were mailed for several months, but as business began to increase the company found mailing too cumbersome a job, so they contracted with a house-to-house distributing service. One neighborhood at a time is selected, and others follow in sequence. "We're reasonably sure to contact every homeowner using a hand fired heating plant at least two or three times per year in this way," it was stated. "We have found a definite advantage in distributing the folders from house-to-house, inasmuch as they do not arrive with the mail where they receive less attention." Due to the tremendous interest in automatic heating, Denver Heating and Air Conditioning Company has hit the incredibly high return of one card for every five distributed, enough prospect leads thus being created to keep six salesmen, all paid straight commission per sale, out on the job full time. A notation on the card states: "One of our experienced heating engineers will advise you without obligation, with all work guaranteed and one year free service"—an almost irrestible appeal.

How Salesmen Are Trained

Each of the salesmen have been put through an installation and engineering training course, plus factory lectures, and is well qualified to make the heating system survey and to estimate costs for labor, parts, installation, etc., on every job. A survey form is carried to each home visited, with space for all details, such as heating requirements of the home, size and type of existing equipment, notations of poor condition or poor adjustment of equipment, and recommendations for modernization or repair. Work orders are transferred daily to the large warehouse and fabrication shop operated by the company, and are scheduled for completion at a specific time. With 20 men available for full time work, and others available part time during special rush periods, the firm makes it a matter of policy to deliver fully on its promises and has built much good will on that basis.

Mr. Bennett, incidentally, is a veteran of many years of plumbing and heating contracting in the East, and has had long experince as a test engineer with the American Gas. Assn. Denver, which is one of three cities in the U. S. to double its population in three years, was selected as an excellent market due to the high capacity gas lines recently brought in from Oklahoma fields, plus the vast number of hand fired furnaces still in use.

SALES OUTLOOK FOR WATER SYSTEMS

LARGE PROFITS await the DOMESTIC ENGINEERING dealer who will aggressively go after rural business.

This point was made over and over again by speakers at the annual meeting of the National Assn. of Domestic and Farm Pump Manufacturers, held recently in Chicago.

Frank E. Watts, New York City, described the expanding market for electric farm pumps and water systems. He told the water systems manufacturers that by Jan. 1, 1949, more than 4,250,000 farms will be connected with electrical power. By Jan. 1, 1951, he said, there will be approximately 5,250,000 farms on power lines. At the beginning of 1949, Mr. Watts said that there were approximately 750,000 farms within one quarter of a mile from power lines and that service is available to these farms whenever they desire it.

"The water system has the greatest sales story of any electrical equipment on the farm. Nothing gives the farmer so much labor saving convenience as the electric farm water system. Not only does the water system save time and labor and increase production, but it contributes in many ways to better living on the farm," Mr. Watts said.

He pointed out that, despite these advantages, only 35 percent of farms have running water. He declared that this fact is a challenge to the water systems industry.

A suggestion that a special month be designated as "National Water Systems Month", offered recently by Robert T. Jones, manager of the rural sales department, Pennsylvania Power and Light Company, is now being studied by a joint publicity committee.

Herbert C. Angster, executive director of the group, reviewed activities of the association for the past year. He touched on the work of the association in obtaining a greater allocation of steel pipe for the farm water systems field and on attempts to have the Bureau of the Census reinstate the practice of issuing monthly reports on the shipments of all types of systems.

"Pipe is one of the bottlenecks, and the most serious of all, encountered by the farmer who wants to have running water," said Mr. Angster.

"There are two solutions, and your association has been working diligently on both of them. One is to substitute copper tubing for steel pipe. The other is to get the steel pipe mills to increase the percentage of total ingot production going into the making of pipe. At the present time about 3 percent of steel ingot output is being used for making pipe. If this could be increased to 4 percent, the problem would be solved."

The meeting was preceded by a gathering of the all-industry planning committee of the association. At this meeting a poll was taken of all sales managers present. The consensus was

(Please turn to page 158)

Step One: Successful selling through pictures is based on the fact that the first sense (seeing) is the most important—when the main appeal is to beauty, as in the case of kitchens. Article tells how a leading Domestic Engineering dealer gets Mr. and Mrs. Smith to visit his showroom, and then how he follows through until the final contract is signed for a complete kitchen remodeling job. Here, he shows photos of past kitchen installations made by his company, to give the couple an opportunity to visualize what can be done in their own home.

Pictures *Sell* Kitchens

Dealer tells how to get prospects for complete kitchen remodeling jobs . . . and how to sell them

DOMESTIC ENGINEERING presents, on this and the following three pages, an outline for selling. More specifically, an outline for selling kitchens.

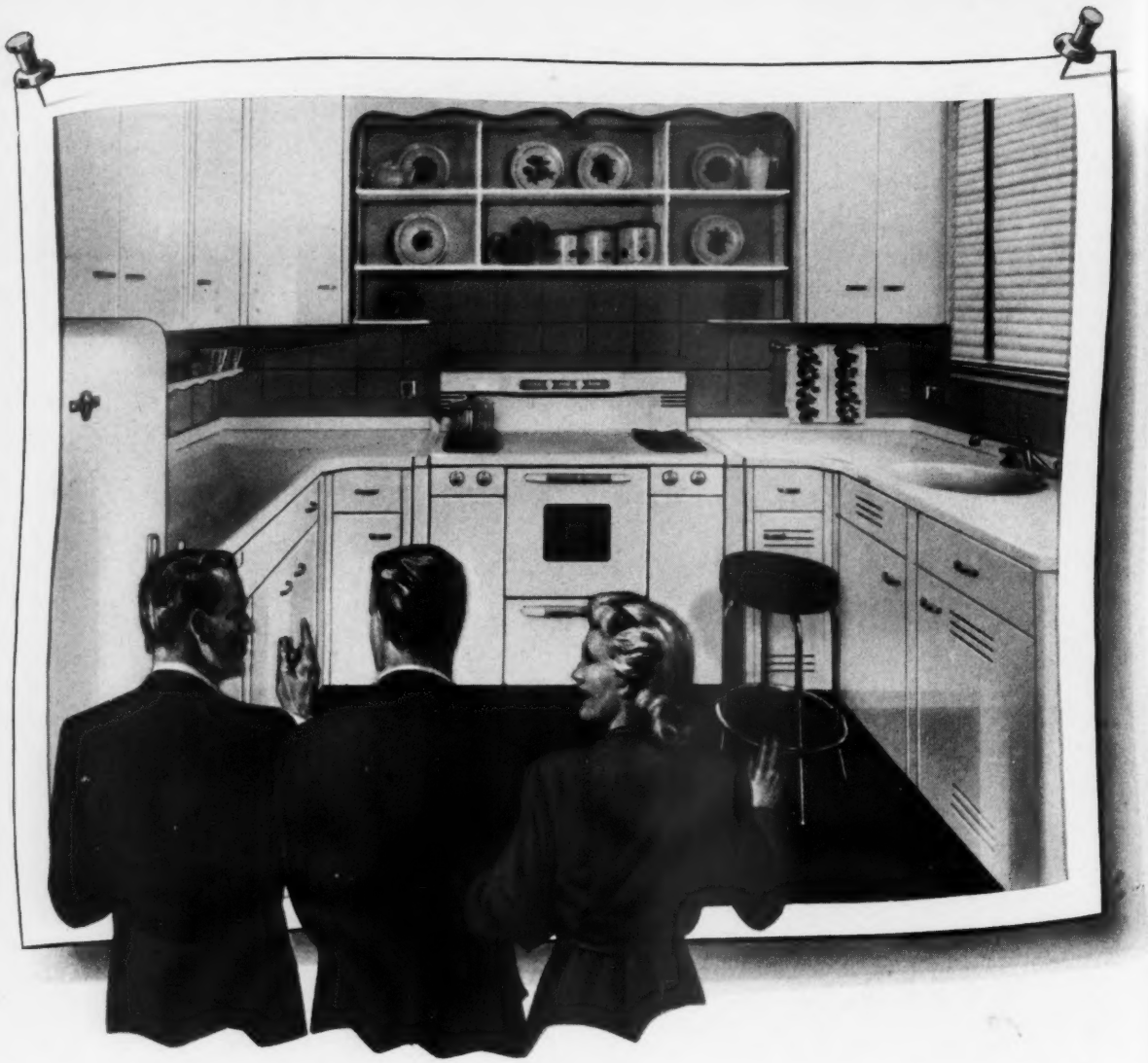
It's not our formula. It's a method developed and put into operation, through the years, by DOMESTIC ENGINEERING dealers. It has proved itself successful in many, many practical experiences.

The "selling through pictures" technique was used by numerous winners in the previous merchandising contests sponsored by this magazine. Various refinements have lately been put into practice by other leading contractor-dealers who will be entered in the next contest.

Successful selling through pictures is based on the fact that the first sense (seeing) is the most important when the first appeal is to beauty, as in the case of kitchens (step one). When beauty is established, through photographs or artwork and floor samples of kitchen components, the next problem is to demonstrate convenience (step two). Work-saving can easily be visualized through pictures . . . "Only so many steps from range to refrigerator . . . Cutting board here . . . Double compartment sink here, easy for dishwashing and convenient to work spaces . . ." And so on and so on.

As the dealer points and talks, Mrs. Smith can easily see the contrast between the convenience of these modern kitchens and her own haphazard arrangement.

Where does the method begin? Most logically, with actual photographs of kitchens which the dealer has already installed for people Mrs. Smith knows. Thus, the technique of testimonial is combined with the technique of picture visualization. If the dealer, as of today, has no installation pictures of his own, the model kitchen photographs made available by manufacturers can be very helpful. But the sales technique developed in this section



Step Two: Work saving can easily be visualized through pictures. ". . . Only so many steps from range to refrigerator . . . Cutting board here . . . Double compartment sink here, easy for dishwashing and convenient to work spaces . . ." And so on and so on. As the dealer points and talks, Mrs. Smith can easily see the contrast between a modern kitchen and her own haphazard arrangement. There is no intention in this article to lay down hard and fast rules for selling with pictures. The method suggested by many contractors, and outlined herein, is comprehensive—so the reader may adopt, or modify, any particular techniques or utilize the entire plan in his own operation. Article shows how it's done in actual practice by one dealer.

does depend directly upon a camera employed by or for the dealer, and the making of picture records of successful kitchens in order to sell more kitchens.

So now we have the pictures. In what form do we prepare them, and how do we utilize them?

If selling kits are used by salesmen, or by the dealer himself, 8 by 10 enlargements of the kitchen photos should be an integral part. They can be mounted on the leaves, bound as part of the book itself, covered with cellophane or presented in any number of different ways.

The old-fashioned stereoptician slide is still an ideal method of bringing third-dimension effects to the pictures, and this is important because of the depth of camera focus involved in most kitchens. Viewers are light and comparatively inexpensive; they can be carried to the home of the prospect, or used in the showroom. The pictures may be black and white, or they may be satisfactorily tinted to give a full-color effect. Cameras with two lenses are now available which simplify the task of getting three-dimension photos.

The newest wrinkle in the *pictures sell kitchens* technique involves the provision of a special room or small theater, seating not more than a half-dozen, in the showroom—where pictures can be projected on a screen and enlarged for utmost realism. A bet then is overlooked if the pictures are not taken in full color—which is inex-

Step Three: Our typical dealer visits the Smith home. After a careful study of available space, he makes several rough kitchen design sketches that will fit both the space and amount to be spent—in addition to satisfying desires already expressed by the couple. Back in the company office, the sketches are done in finished form, colored and presented to Mr. and Mrs. Smith for approval. The one at right was selected by the Smith family as a guide for remodeling (see next page).

pensive if transparencies are used for the screen slide.

There is no intention in this article to lay down hard and fast rules. The method suggested by many contractor-dealers, and outlined below as the experience of one typical dealer, is comprehensive—so the reader may adopt, or modify, any particular techniques or utilize the entire plan.

Let's see how it's done in actual practice. Inasmuch as our typical dealer's program is similar to activities of many others throughout the country, and can be adopted in whole or in part by still others, we will refer to his operation as Anytown Plumbing and Heating Company.

First step is to obtain a *good* list of prospects. Many methods have been outlined in past issues of DOMESTIC ENGINEERING, but only one will be discussed here. It was chosen because of the exceptional results it has achieved and because of its significance to this dealer's entire *picture merchandising* program.

Anytown Plumbing and Heating Company heralds the beginning of each season (fall, winter, spring and summer) by announcing in city-wide and neighborhood newspapers that ". . . You are invited to Anytown Plumbing and Heating Company's pre-Thanksgiving cooking school—beginning Monday, Nov. 8 for one week only. It will be under the direction of Mrs. Alice Urback, noted culinary author, who has thrilled the tastes of Vienna,

Step Four: When remodeling is completely finished, the dealer has a photo taken of the new kitchen—which then takes its place alongside pictures of other installations. In this way, the cycle continues—picture records of successful remodeled kitchens are made in order to sell still more remodeled kitchens . . . to more Jones', Smiths and Browns.

London, Paris and Berlin during her 25 years of instruction in tasty food preparation. Plan to attend every exciting session." The activities for each day are then listed, so the reader can choose a period that features cooking she is most interested in. Activities range all the way from meat roasting and pastry baking to preparation of unusual delicacies, with emphasis placed on foods that fit the season. Ad copy also conforms to the season.

As a final inducement, door prizes are offered, and the company emphasizes that no charge for admission is made and no purchase is necessary. Daily prizes include such items as cooking utensils, floor lamps, hand irons, etc., with the grand prize for each of the four week-long demonstrations held during the year a major appliance.

Needless to say, response from all sections of the city has been something *more* than enthusiastic. It is necessary to hold several classes each day during the demonstration week to accommodate the large crowds. After visitors to each session are made comfortable in folding chairs, the food is actually prepared right in the model kitchen before their eyes. The ladies are provided with mimeographed sheets which give recipes of all foods under preparation. On the closing day of the week-long demonstration held before Thanksgiving of this year, more than 400 women were served roast turkey with all the trimmings, which illustrates the attraction of this type promotion. All women are given a card, with space for name, address, phone and a list of items that may be checked for more information—such as kitchen remodeling, individual appliances, utensils, etc.

Filled-in cards are used as a prospect list for the three month period following each cooking demonstration. Naturally, all prospects are not sold complete kitchen remodeling jobs—but the high grade of prospects obtained by this method has enabled Anytown Plumbing and Heating Company to achieve an excellent record of sales completions. This has far more than justified the expense, a company spokesman told us. Women not specifically interested in kitchen remodeling are often sold kitchen components—such as utensils, individual appliances, etc., as a direct result of this promotion.

Now that our typical dealer has a high-grade prospect list, here's how he uses the *selling with pictures* techni-

(Please turn to center of page 170)

Something New in Heating

Engineers and contractors will study innovations, adopt the practical ones

THE NINE following pages are devoted to special features which come under the head of "There's Something New in Heating." These articles will be of particular interest to engineers and others attending the meeting of the American Society of Heating and Ventilating Engineers (in Chicago this month) and, indeed, of interest to all members of the heating industry.

There *is* something new in heating—in products, in installation techniques. The new ideas being developed lend a certain glamour to the products and services of our industry and serve to focus public attention upon heating. This means that the public will demand more in indoor comfort, and will be willing to pay more to obtain such comfort.

Panel Heating's Growth in Last Decade

Genuine progress in heating must be based upon the familiar principles which this industry has long understood. Take radiant panel heating which has had a tremendous growth in the past decade and which now employs various kinds of piping for hot water systems and various types of duct work for warm air. Our industry realizes that the same basic principles apply in regard to panel heating as to any other system. Indeed, as convection and radiant-convection systems are properly designed and installed, they warm the floors, walls and ceilings and provide the same type of comfort as radiant systems. Conversely, panel systems warm the air, and the comfort resulting is partly due to convection from the warmed surfaces.

Heat Pump is Newest Glamour Product

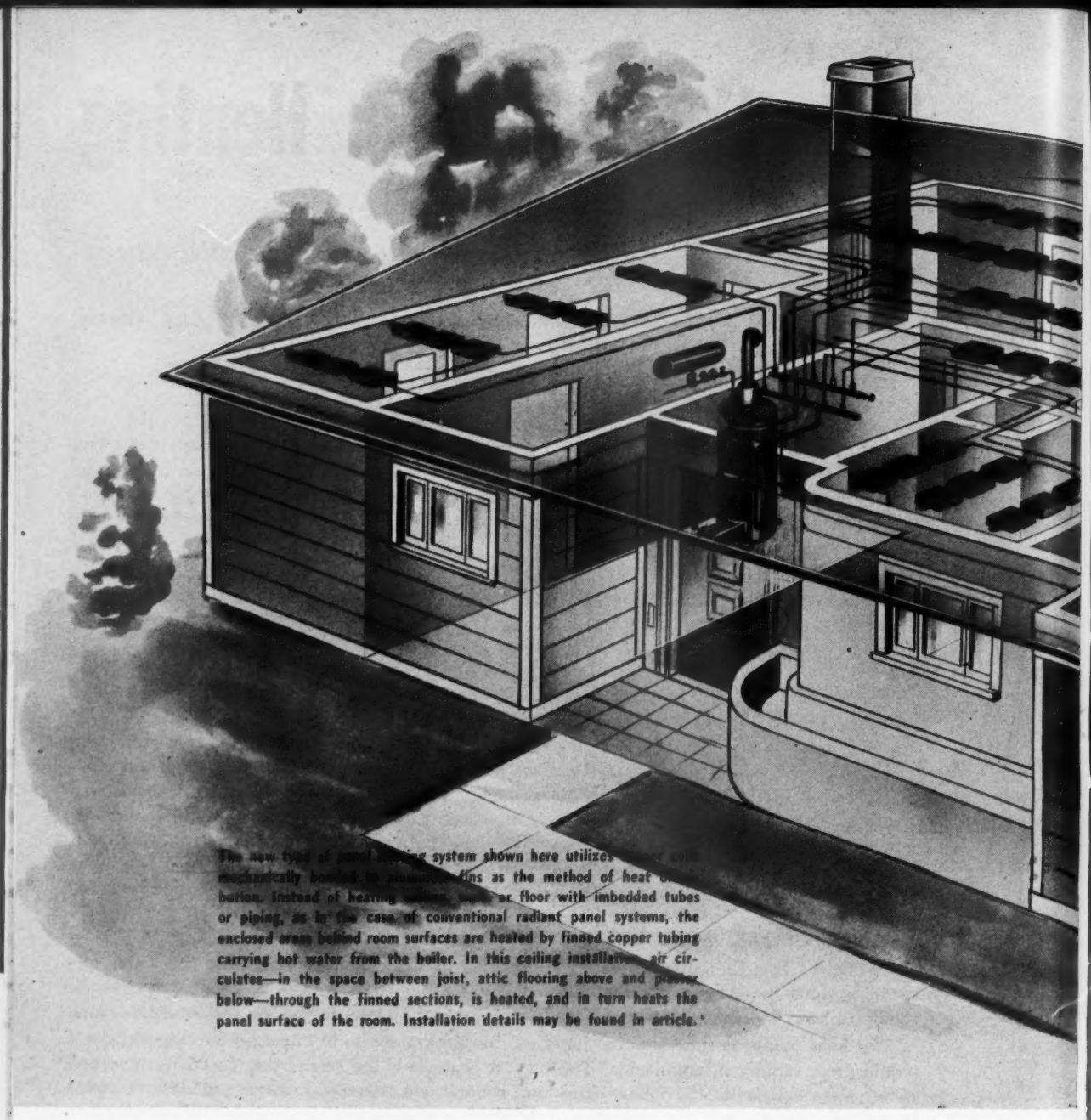
Today, we note the entry of electrically-heated glass and rubber slabs into this field. Depending upon the type of building construction, various kinds of heat-exchanging devices are being utilized to heat hollow spaces and thus warm the panel facing the inside of the room.

The heat pump, newest glamour product, has progressed to in intermediate stage where it could grow rapidly in popularity. The biggest obstacle is the cost of the electricity involved. One of the articles in the following section reports one attempt (involving the jet principle) to utilize other fuels in the operation of the refrigeration cycle. But neither the heat pump nor panel heating makes conventional devices obsolete. Each type of generator and distributive device is still sound, on its own merit, and many of them can contribute—as components —in the panel or heat pump system.

Controls Provide Refinement in Heating

Much of the refinement in heating which is available today results from development of better controls. Electric, pneumatic and electronic controls have progressed to a high state of perfection, and they assure the success of both new and conventional systems. Controls guided by the outside temperature, by inside conditions, and by a combination of the two all play their appropriate roles, depending upon the type of structure and the type of heating system.

The rank and file of the heating industry is intensely interested in all new developments in heating. Reports on such developments are read avidly and studied carefully. Heating contractors, as a group, prefer to make haste slowly with new inventions because they feel very strongly their obligation to give the customer a satisfactory and guaranteed installation. This is as it should be, and it is assurance that—as and when new products are proved successful—they will be merchandised and installed by contractors in our industry.



The new type of panel heating system shown here utilizes [illegible] mechanically bonded to aluminum fins as the method of heat distribution. Instead of heating ceiling, walls or floor with imbedded tubes or piping, as in the case of conventional radiant panel systems, the enclosed areas behind room surfaces are heated by finned copper tubing carrying hot water from the boiler. In this ceiling installation, air circulates—in the space between joist, attic flooring above and plaster below—through the finned sections, is heated, and in turn heats the panel surface of the room. Installation details may be found in article.

THERE'S SOMETHING NEW IN HEATING

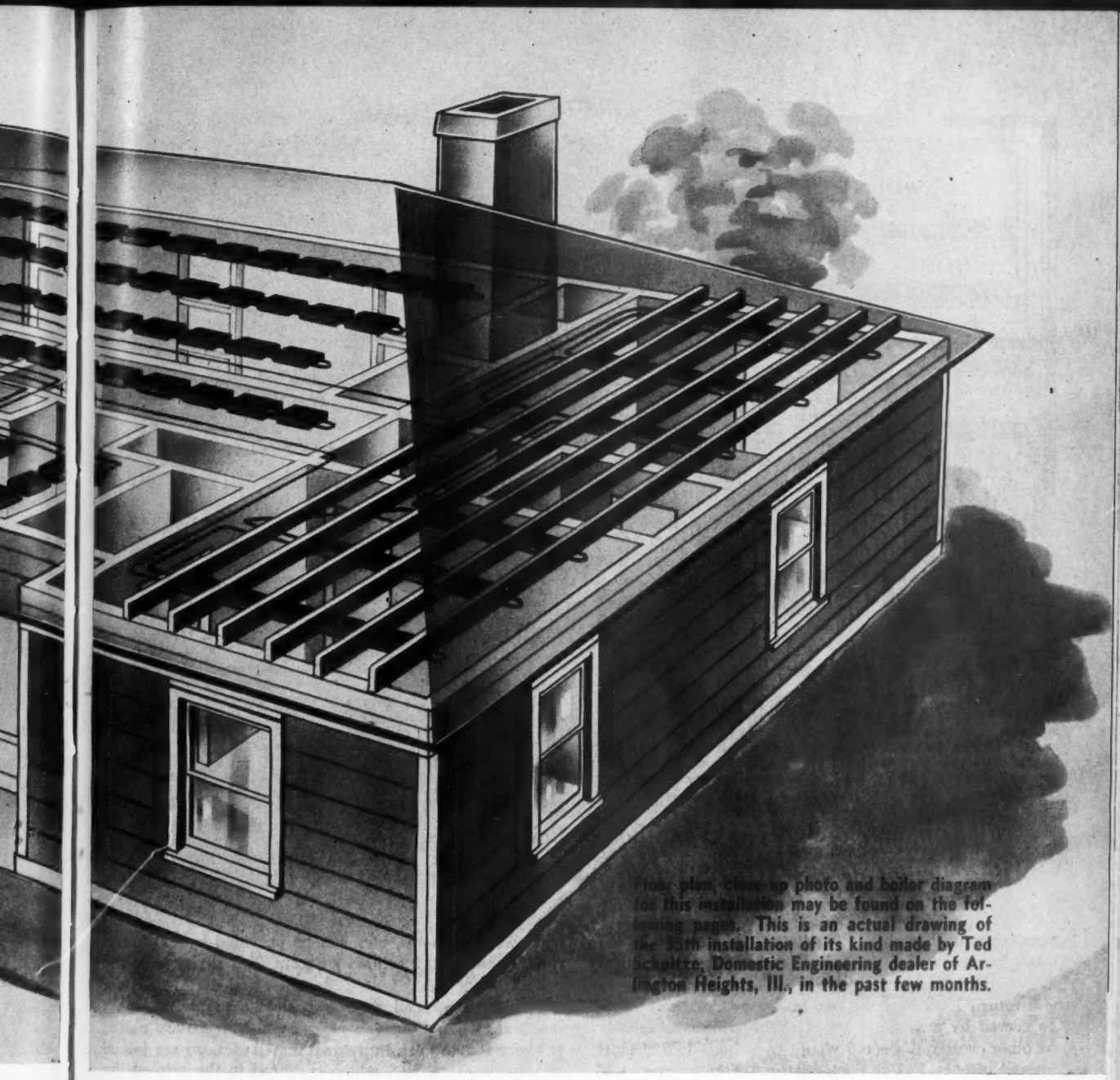
Dealer tells how to figure and install new type of panel heating system that utilizes coils bonded to aluminum fins

A NEW TYPE OF PANEL heating system, utilizing copper coils mechanically bonded to aluminum fins as the method of heat distribution, has made its appearance in a number of new homes around Arlington Heights, Ill.

Ted Schultze, the installing contractor, outlined installation details for DOMESTIC ENGINEERING during a recent visit to a typical job.

First, let's look at physical characteristics of the system itself, how it works and then techniques for design and installation. The illustration at the top of this spread—and the plan drawing, close-up photo and boiler diagram on the following pages—will help the reader visualize operation of the system.

Instead of heating ceiling, walls or floor with imbedded tubes or piping, as in the case of conventional radiant panel systems, the enclosed areas *behind* room



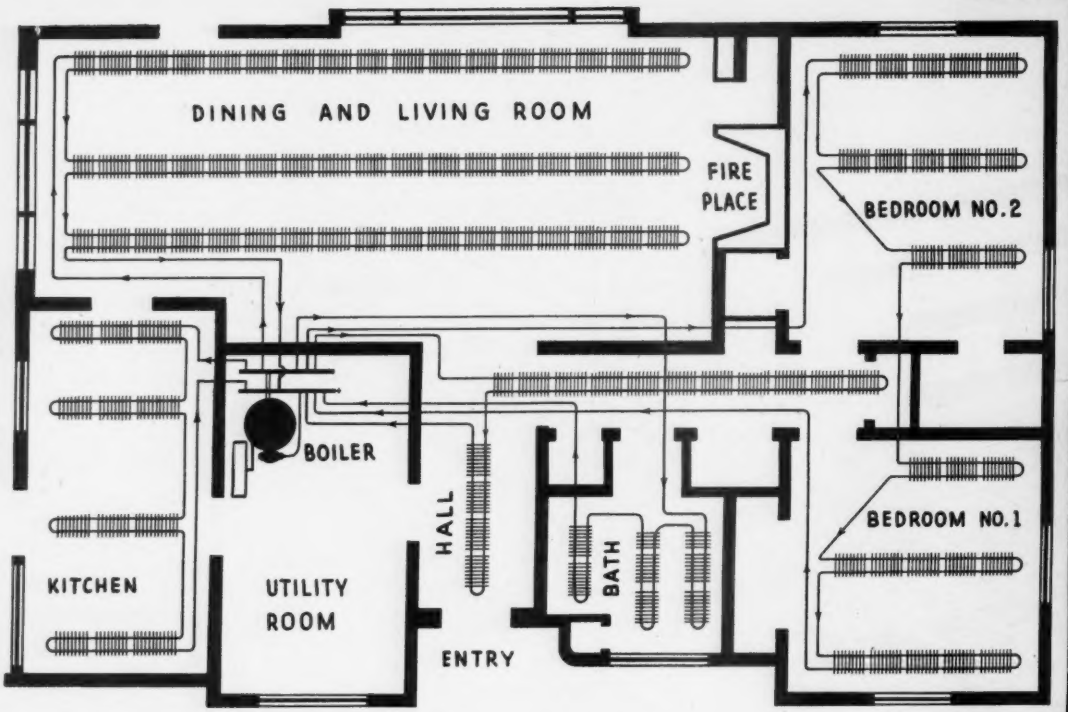
Floor plan, close-up photo and boiler diagram for this installation may be found on the following pages. This is an actual drawing of the 55th installation of its kind made by Ted Schultze, Domestic Engineering dealer of Arlington Heights, Ill., in the past few months.

surfaces are heated by finned copper tubing carrying hot water from the boiler. In a ceiling installation, typified by the illustrations, air circulates—in the space between joists, attic flooring above and plaster below—through the finned sections, is heated, and in turn heats the panel surfaces of the room. Wall installations operate under the same principle.

The coils are constructed of two parellel runs of ⅝ in. copper tubing on 3 in. centers. Aluminum fins, 1½ by 6 in., are mechanically bonded to the coils in the manner shown at top of page 107. Individual finned sections are 12, 16 or 24 in. long, depending on joist or stud spacings, and any desired number may be sweat connected to provide a "coil run", which is the term applied to the total length of finned sections necessary to reach from one end of the room to the other—in a straight line. The total number of coil runs in each room, connected to one supply and one return line, is called a circuit.

As shown in the perspective drawing of a typical installation, on these pages, three coil runs are connected to one supply and one return line in the combination dining-living room. In other words, the three coil runs in this room constitute one coil circuit to and from the boiler. The plan drawing on page 106 coincides with the two-color illustration, and shows direction of flow for supply and return lines to and from all circuits in the house. Other complete circuits, containing a varied number of coil runs, go to the kitchen, two bedrooms, bath and hallways. For purposes of simplification, the entryway installation has been omitted from the two-color drawing, though it may be found in the plan.

Under more extreme weather conditions in other areas,



Plan drawing above gives layout for new type panel heating system installed in the home shown on preceeding pages. The combination dining-living room is served by one coil circuit, the two bedrooms by another, and the kitchen, bath and hallway by three others. Under more extreme weather conditions, the circuit lengths could have been shortened by adding additional supply and return lines to the system. In this case, however, the circuits are not too long, as a high velocity circulating pump has been installed at the boiler.

Floor plan, close-up photo and boiler diagram show installation details of new type panel heat system

circuit lengths for the dining-living room might be too long. In such a case, the outside coil run for the dining-living room could be connected to one set of supply and return lines, and the two innermost coil runs could be served by a separate set of supply and return lines. In other words, the room would then have two circuits instead of one. In like manner, the two bedrooms could be served by separate circuits, instead of one circuit for both. In actual practice, however, the circuit lengths are not too long for the installation shown, as Mr. Schultze has compensated for the runs by installing a high velocity circulating pump at the boiler. In this way, of course, water is returned to the boiler for reheating before it cools below its effective temperature.

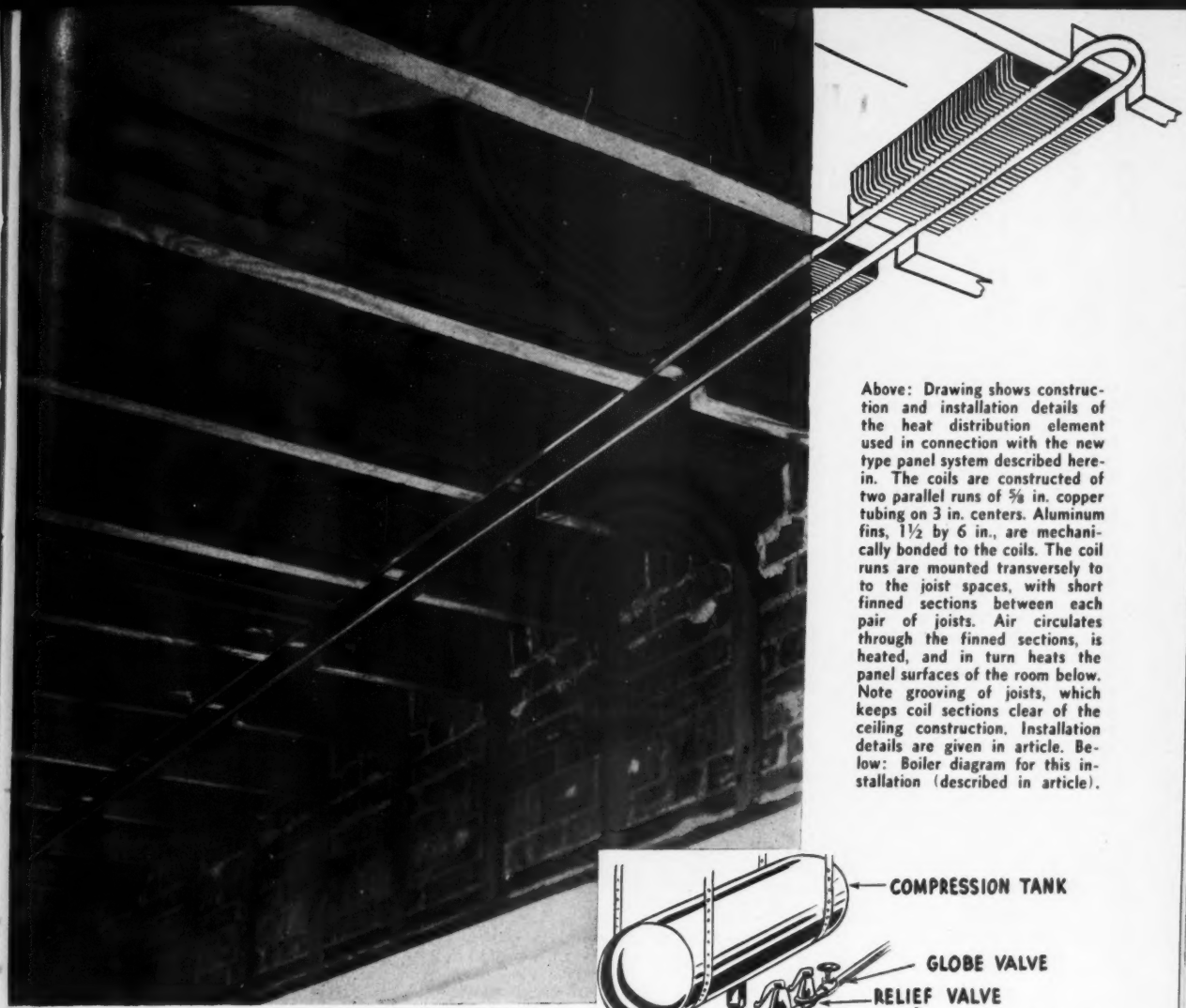
When each house is completely framed, and before the interior walls are erected, coil runs are mounted transversely to the joist spaces with short finned sections between each pair of joists, as shown in the photo on page 107. Coil runs are started approximately 12 to 18 in. from the outside walls and are placed on centers varying from 5 to 12 ft apart—depending on heat requirements of the particular job, outside design factors, etc. In this way, the warmest water is supplied to the coil run nearest the outside exposure, thereby presenting the warmest part of the panel to the exposure where heat loss is the greatest. Supplementary heat for unusual exposures, picture windows, bathrooms, etc., can be provided by extra coil runs, either in the ceiling, adjacent wall surfaces or the floor below.

Installation of coil runs is basically simple. A chalk line gives the placement position, and hangars are nailed to every fourth joist. Individual finned sections are joined to provide a coil run, which is placed in the grip of the hangars and then properly adjusted in length to fit the entire series of joist spaces from one end of the room to the other. Individual coil runs are then sweat connected to form an entire coil circuit.

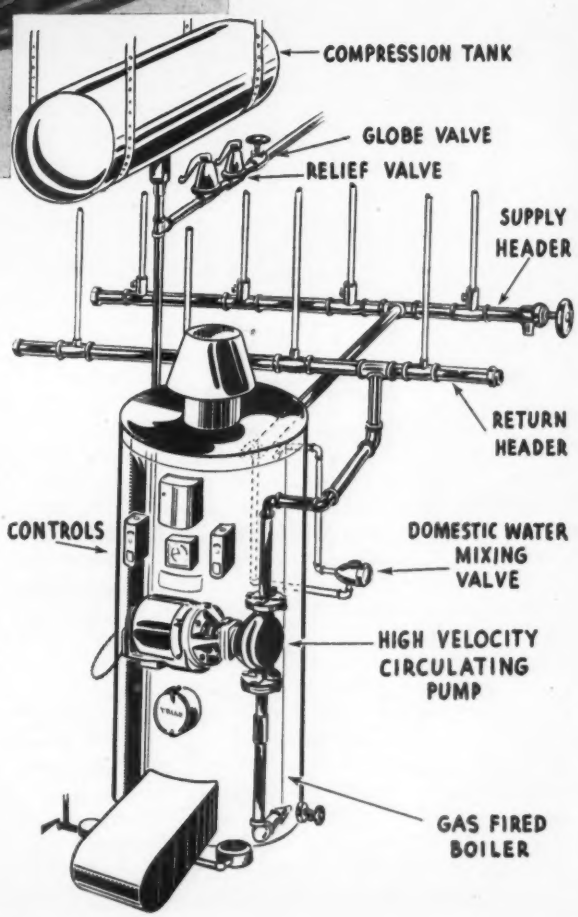
There are two methods of keeping coil runs clear of the ceiling construction. One involves grooving the joists to accommodate the coil sections, as shown in the photo. When grooving is impractical, or undesirable, 2 in. by 2 in. furring strips may be applied transversely to the joists, which permits an approximate 1½ in. space below the tubing and fins.

With the small number of circuits and the short travel of water, the problem of balancing out the various circuits has been greatly simplified by the installation of cocks or valves at the boiler header, Mr. Schultze told us. These may be manipulated, of course, to compensate for any change in heating requirements.

The heating system for the home pictured here was designed for a temperature range of -10 to 70F, with a 200F



Above: Drawing shows construction and installation details of the heat distribution element used in connection with the new type panel system described herein. The coils are constructed of two parallel runs of ⅝ in. copper tubing on 3 in. centers. Aluminum fins, 1½ by 6 in., are mechanically bonded to the coils. The coil runs are mounted transversely to to the joist spaces, with short finned sections between each pair of joists. Air circulates through the finned sections, is heated, and in turn heats the panel surfaces of the room below. Note grooving of joists, which keeps coil sections clear of the ceiling construction. Installation details are given in article. Below: Boiler diagram for this installation (described in article).



boiler temperature. Panel surafces range from 100 to 105F on the average. The conventional method for computing heat losses from a building and for determining the heating capacity of equipment needed to meet such heat losses—utilizing tables made available by manufacturers—was used by Mr. Schultze.

The boiler for this job (see diagram) is gas fired and rated at 150,000 Btu. It is similar to those used on many conventional forced hot water heating systems. It is also used for year round domestic hot water and is fitted with a mixing valve for proper tempering.

In the system described here, an ordinary room thermostat is used to control operation. On some of the other jobs installed by Mr. Schultze, outdoor-indoor type controls have been used and will be described in a future issue. When the thermostat calls for heat, the pump starts and rapidly circulates heated water through the coil circuits until the heat requirement is satisfied. At that point, the thermostat shuts off the pump. While the pump is in operation, a flow control valve is opened by the force of water, permitting free circulation of heated water through the system. When the pump stops, the valve closes and prevents circulation by gravity, which could cause overheating of the rooms.

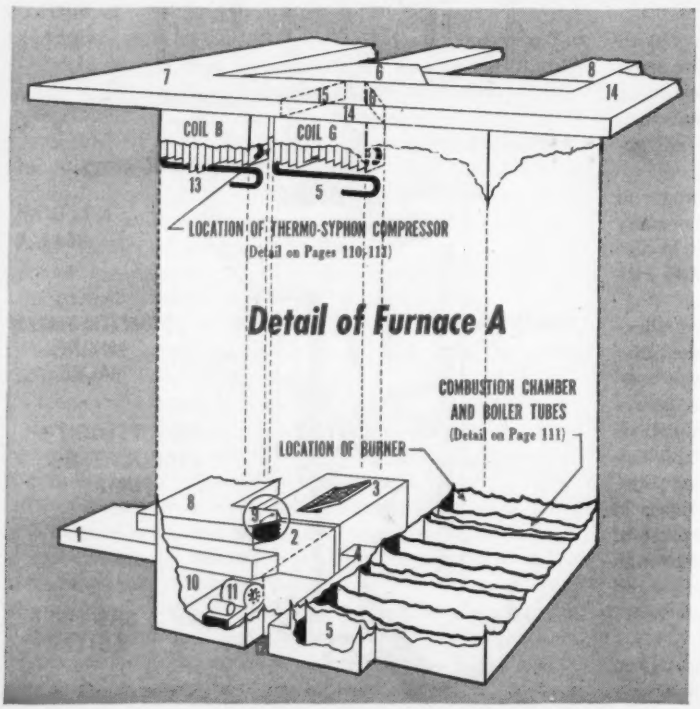
In this typical home, the entire installation up to the pump manifold was made by two men in 14 hours.

There's Something New in Heating!

RESEARCH GOES FORWARD IN THE HEAT PUMP FIELD

Idea is to lower the cost of operation so that commercial models can be made available to mass markets. Here's one approach

While looking for the solution to high installation and operating costs of heat pump systems, researchers are coming up with all sorts of new ideas. Some have merit, some have not. One interesting approach to the problem is in the final stages of development by a Chicago engineer. Most important feature is a revolutionary type of refrigeration compressor (described fully, page 110). Here's how the entire system, shown at right and below, works: On the heating cycle, air from the room enters circulation return duct 1 passing through distribution damper 2 to filter chamber 3, where it is picked up by blower (not shown) and blown through duct 4 into heat exchange chamber 5, passing over coil G (see detail, page 111) where it is heated and then through a by-pass damper to by-pass duct 6, from which it carries on through air supply duct 7 —where it is distributed to the rooms. Additional heat is added to the system from fresh air entering inlet 8 which passes through distribution damper 9 and into filter chamber 10, from which it is forced by blower 11 into duct 12, passing over coil B (refrigerant) in duct 13, then returning as colder air through duct 14 to the outside. In reversing the cycle for summer room cooling, air from the room passes through duct 1, through damper 2 into chamber 10, blower 11, ducts 12 and 13, being cooled as it passes by coil B, returning as cooled air to the room through duct 7. The room waste heat is exhausted by being added to the air from fresh air inlet 8, which passes over coil G in duct 5 and out through duct 14. Damper 15 and 16, being closed, will prevent mixture of the air. Partial opening of these dampers will permit an addition of fresh air and retempering to the ventilation system. Complete details in article.



THE heat pump has captured public fancy, for two reasons. First—it cools the building in summer, as well as heating it in winter. Second—the heat itself, apparently, is "free"—being one of the bounties that nature puts in ground and air.

This latter advantage is only a seeming one, as the owner discovers when he gets his electricity bill. The heat pump takes a lot of electricity, and it can't be purchased on an "off-peak" basis.

Electricity is, of course, merely one form of energy, and a number of people are concerning themselves with ideas for harnessing some generator, utilizing cheaper fuel, to the heat pump. Of course, this can be done,

but it would seem to involve a great addition to the already large original cost of a heat pump installation. And second, would the operating cost *really* be cheaper? These points remain to be answered in practical form.

While looking for a solution, researchers are coming up with all sorts of ideas. Some have merit, some have not. One of the latest and most interesting approaches to the problem may be found in the efforts of a young Chicago engineer, Norman C. Powers.

His device, shown on this page, is an unusual type of warm (or cooled) air furnace, which includes a heat pump activated by a revolutionary type of refrigeration compressor. It may help overcome deficiencies of present systems. The refrigeration compressor, termed a thermo-syphon jet unit, enables the furnace to deliver more heat in the form of warm air than is put into the furnace by the conventional fuel burning boiler, which can be designed to burn any fuel.

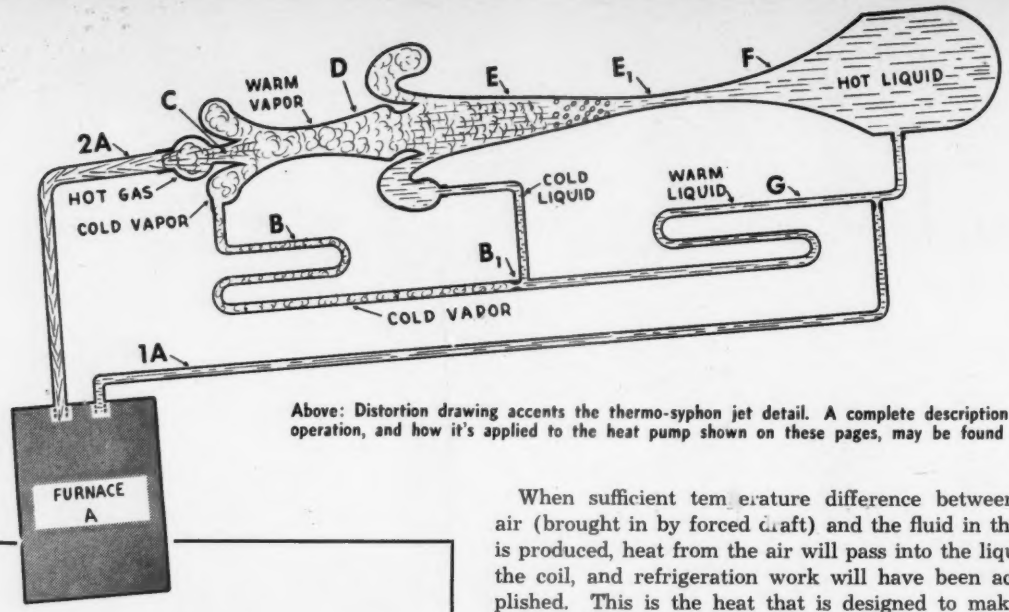
Additional heat is taken from outside air by reverse refrigeration, or heat pump action of the air furnace.

Air was chosen as the heat source to eliminate cost of drilling a well or providing a costly pump system to bring water to the unit. This, however, reduces efficiency of the thermo-syphon at temperatures of 30F and below, and brings up problems of defrosting coils during cold weather. At below freezing temperatures, principle heat source is the boiler, with only a small amount of heat taken from outside air.

The system is also adaptable to use with water, which may give good service even in coldest weather. Water as cool as 37 deg can be used economically, Mr. Powers believes. The cost of the water supplying equipment will be offset somewhat by lessened requirements for the refrigerant boiler, and less fuel consumption in cold weather.

Even though operating costs may be lower with the water system, the cost of a well or ground grid alone might approach the cost of the entire air operated unit,

(Please turn to center of page 111)



Above: Distortion drawing accents the thermo-syphon jet detail. A complete description of its operation, and how it's applied to the heat pump shown on these pages, may be found below.

HOW THE JET CYCLE WORKS

THE POWERS JET THERMO-SYPHON might be called a combination ejector-injector and refrigeration cycle.

The system was designed specifically to do a heat moving job, activated by a cheap fuel source. In this case, heat from the combustion of any conventional fuel.

The entire unit, which performs the function of a furnace, includes a pressure boiler, the thermo-syphon jet refrigeration compressor, a pair of finned convector coils for heat exchangers, and assorted ducts, dampers, blowers and heat responsive controls, the latter similar to those used in any forced warm air heating system.

An alternate arrangement would transfer the heat to water, instead of air, for radiant panel or other forms of hot water heating.

On the marked drawing above, A is a flame heated steam boiler, fired by any commercial fuel. A new liquid refrigerant, with characteristics somewhat similiar to Freon 11 or Freon 21, is fed into the boiler, leaving as a hot saturated vapor at about 60 psi through 2A.

The vapor is fed into an adiabatic expansion nozzle (C), where part of its heat energy is converted to kinetic (or motion) energy by the force of expansion. This expansion of gas, permitted and caused by the enlarging nozzle contour, accelerates the gas stream to about Mach 4, four times the speed of sound, acocrding to mathematical calculations and laboratory experiments.

Reducing Boiling Point of Refrigerant

At this high velocity, it leaves the nozzle and re-adjusts to pressure of the surrounding medium, which is directly exposed to a refrigerant evaporation coil, marked B. In the process of re-adjustment, the high speed stream of gas develops a series of ripples or pulsations, which reach out and entrap free vapor particles that have been diffused from the refrigerant liquid contained in coil B. The pulsations act as pistons to drive this vapor forward.

Evacuation of free vapor particles from the chamber above the evaporative coil creates a partial vacuum, reducing the boiling point of the refrigerant to temperature lower than the air, or liquid, surrounding the coil.

When sufficient tem erature difference between the air (brought in by forced draft) and the fluid in the coil is produced, heat from the air will pass into the liquid in the coil, and refrigeration work will have been accomplished. This is the heat that is designed to make the whole operation profitable.

The ejector element of the thermo-syphon is embraced by the first adiabatic nozzle in which the power gas expands, and the eduction nozzle in which free vapor particles are entrained by the fast moving stream.

The diffuser (D) is contoured to slow down the gas. When slowing down occurs at speeds faster than sound in the closed tube, part of the kinetic energy of the gas stream becomes converted into pressure energy, and an irreversible higher pressure flow occurs. Powers uses this principle to change the state of his gas vapor mixture to a higher pressure-temperature relationship, so that the vapor stream can be readily condensed.

Process of Condensation Depends on Three Points

This process of condensation depends upon a balance of three important physical conditions. These are (1) pressure and temperature of gas vapor to be condensed, (2) pressure and temperature of the liquid refrigerant which is to be used as condensate, and (3) resultant velocity of intermixed streams of vapor and condensate.

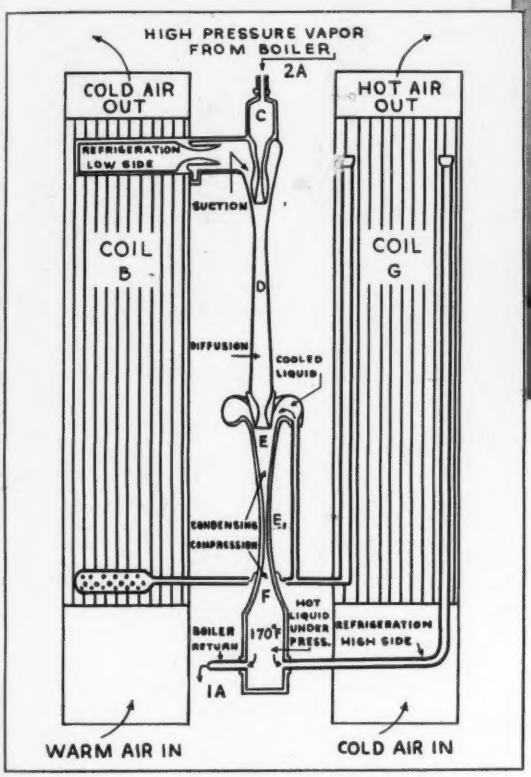
Condensation occurs at nozzle E in a manner likened to that of Giffard or Koerting steam ejectors.

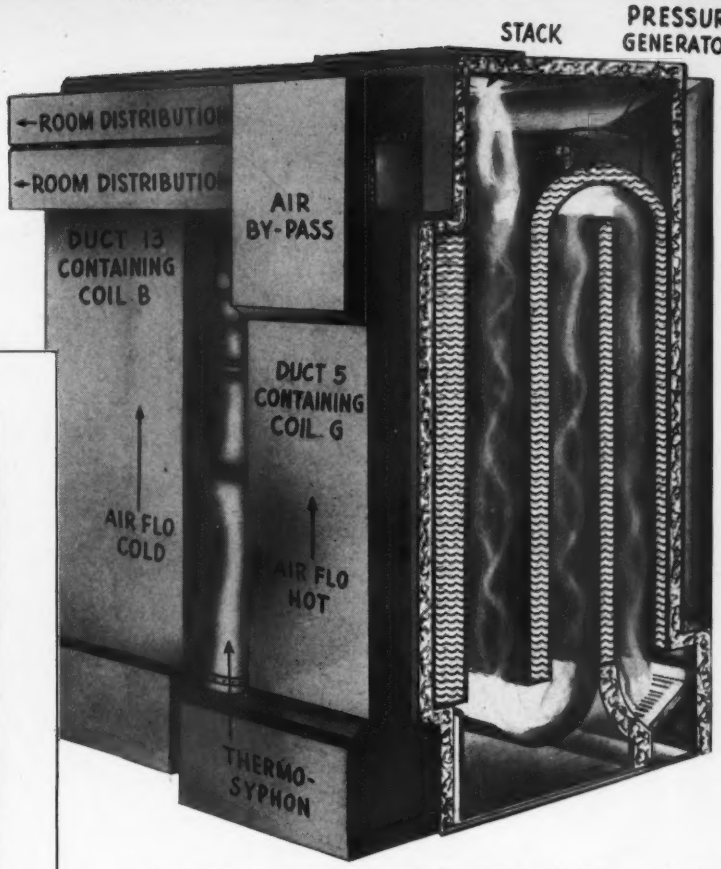
In the Powers cycle, vapor from nozzle-diffusor chamber D will have been raised to a pressure corresponding to 113 F. A stream of liquid refrigerant at about the outside condensing temperature of 80 to 105 F, and under a pressure of 75 psi, will be injected into nozzle E, where it will mix with gas vapor from nozzle D. The liquid stream will immediately break into a series of droplets, and part of it will flash into saturated vapor as it comes into contact with the hotter gas. The remaining unsaturated droplets act as nuclei upon which the cooled vapors may deposit. In this function of condensation, the volume of vapor will change very rapidly, and a part of its heat will be reconverted to kinetic energy. As vapor particles condense on the nuclei of droplets, mechanical energy of the particles will be transferred to the droplets themselves, so the whole is sustained at a high rate of speed. While the process of condensation continues, there will be a more or less continuous acceleration of the condensing mass.

When the entire mass of both liquid and gas are completely or substantially condensed, the droplets gather

(Please turn to center of page 167)

Below and at right: Drawings show additional detail of the new type heat pump system described in article. (See, also, illustrations on other pages and a complete description of how the thermo-syphon jet principle works on page 110.) The entire unit, which performs the functions of a furnace, includes a pressure boiler, the thermo-syphon jet refrigeration compressor, a pair of finned convector coils for heat exchangers, and assorted ducts, controls, etc.





(Continued from bottom of page 109)

according to figures produced by Mr. Powers.

The expected efficiency of the furnace, as calculated by its inventor, is 155 percent at 50 F outside air temperature, and about 85 percent at -10 F.

Based on fuel consumption of 100,000 Btu/hr, the efficiencies would then be as shown below:

Outside Air Temperature	*Effective Heat Output*
50 deg	155,000 Btu/hr
40	132,800
30	120,000
20	110,000
10	99,000
0	85,000
Furnace only, without heat pump	75,000

The heat will be delivered as 80 F heated air.

The normal 25 percent heat loss of a boiler can be recovered by refrigerating it in the heat pump, Mr. Powers told DOMESTIC ENGINEERING. Summer cooling efficiencies have been calculated at an expected 40,000 Btu of refrigeration per 100,000 Btu of fuel consumed.

Provision can be made in the furnace for true air conditioning functions, humidity control, air cleaning, addition of fresh air, and forced circulation of air by methods used in modern practice.

The actual thermo-syphon element (p 110), the real innovation in the Powers system, although requiring years of experiment and mathematical analysis, should be relatively simple and easy to construct by mass production methods. In fact, some thought has been given to manufacturing the parts by extrusion of heat resisting plastics, since the highest temperatures expected are about 170 F, the temperature of a good cup of coffee.

While the thermo-syphon can be made in any size or capacity desired, it will operate at only one speed or rate, full capacity. Therefore, in the interest of efficient operation, the smallest size that will adequately heat a house will be utilized in designing any particular installation.

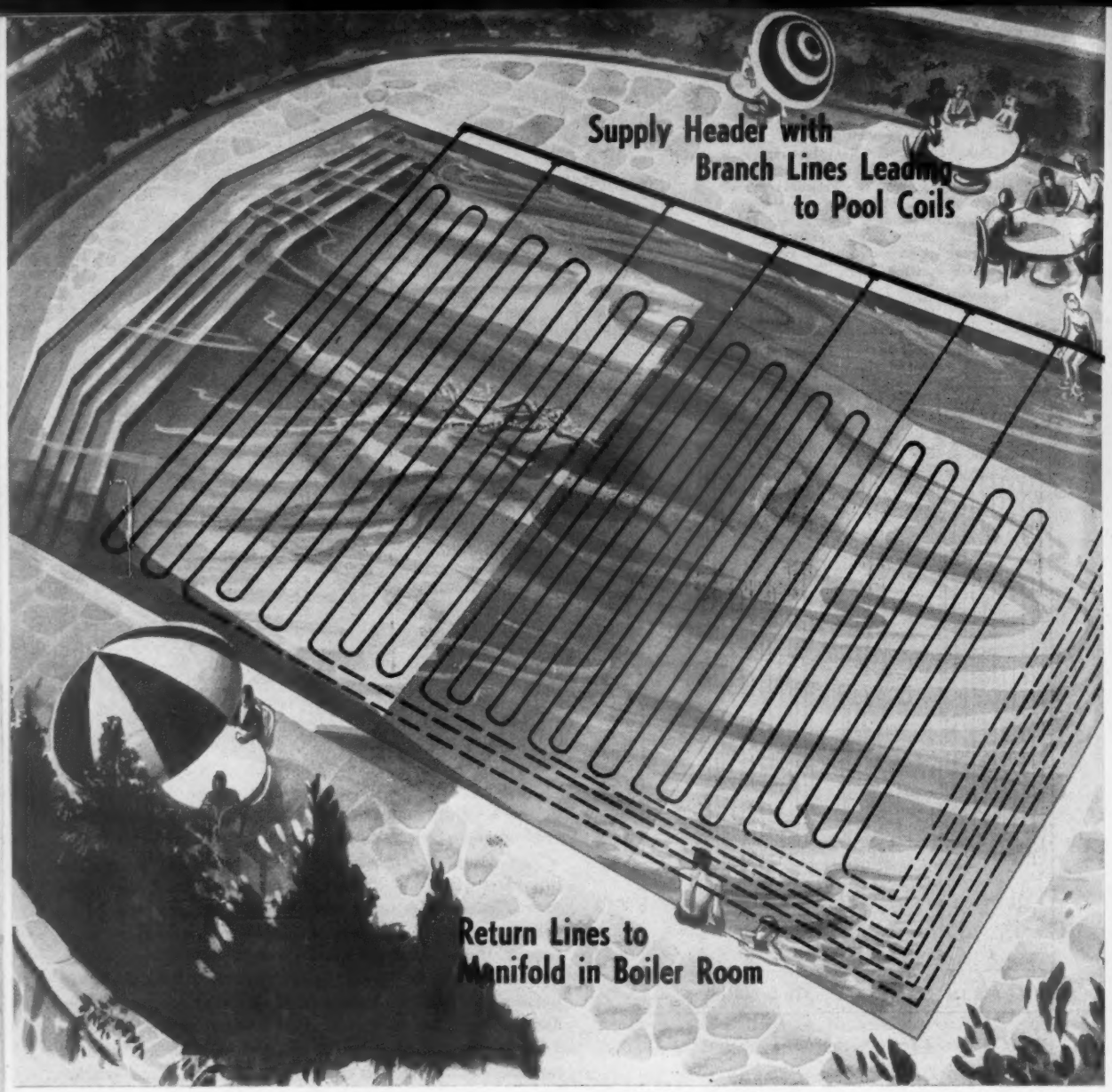
Where natural gas supplies are readily available, or where winter temperatures are above 32 F a reasonable number of days each season, the machine might effect important economies. In other areas, where low winter temperatures prevail or where fuel rates are high, the machine may make moderate savings, but will probably be favored more for its possibilities in year round humidity control and summer air conditioning.

The device, especially the syphon tube, has been studied by physicists, engineers and refrigeration and heating specialists at several technology institutes. Opinion, gen-

(Please turn to top of page 167)

GLASS RADIANT HEATING PANELS

Glass radiant electric heating panels have appeared in a number of homes and offices in recent months. Mainly, they have been used for auxiliary heating. However, a full scale test installation has just been completed in a five story office building in New York city, and a number of interesting design factors were encountered. They will be described in the forthcoming February issue of Domestic Engineering. A typical radiant panel is shown at upper left on the front cover.



IN 1940, Robert Bruen made an experimental panel heating installation in a small, outdoor swimming pool. To his surprise, he says, it was discovered that the pool warmed up much faster than pools with conventional heating systems, and there was much less temperature differential within the pool.

Since then, Mr. Bruen—a DOMESTIC ENGINEERING dealer in Oakland, Calif.—has come a long way with radiant panel installations of all types, as past issues of this publication have disclosed. Recently, this contractor's 1940 (and later) experience with panel heated pools paid off with an order for six such pools for the city of Oakland. "They demanded panel heating," he said.

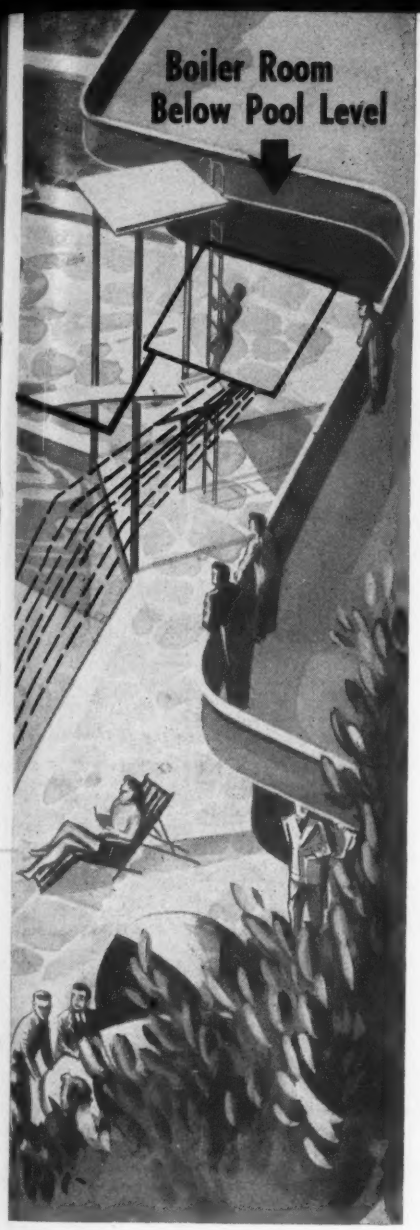
The illustrations herewith explain the workings of the system pretty well. The calculations? Here's how they are explained by Mr. Bruen:

"Here I have a confession to make, and it might as well be made public. There is nothing too scientific in our pool heating design. In preparing our layouts, we work (like flying an airplane) largely by "the seat of our pants," depending on past experience and results obtained in many pools where various methods have been tried—all, incidentally, with good results. We have, however, tried to prepare a formula which would account for the results we get. We will not guarantee it, but outline it below for what it may be worth. Perhaps some enterprising engineer, with time on his hands, will read this and carry the ball from here.

"Our theory is that in heating an *outdoor* pool from the bottom, we obtain maximum effect (absorption) of the sun's radiation, due to water circulation from the heated slab at the bottom of the pool. Without this circulation, heat from the sun simply creates a hot blanket of water on the pool's surface. We have proven this theory by testing pool temperatures at varying depths, with and without the slab heated.

"The absorption of the sun's heat may be assumed at

(Please turn to top of page 168)

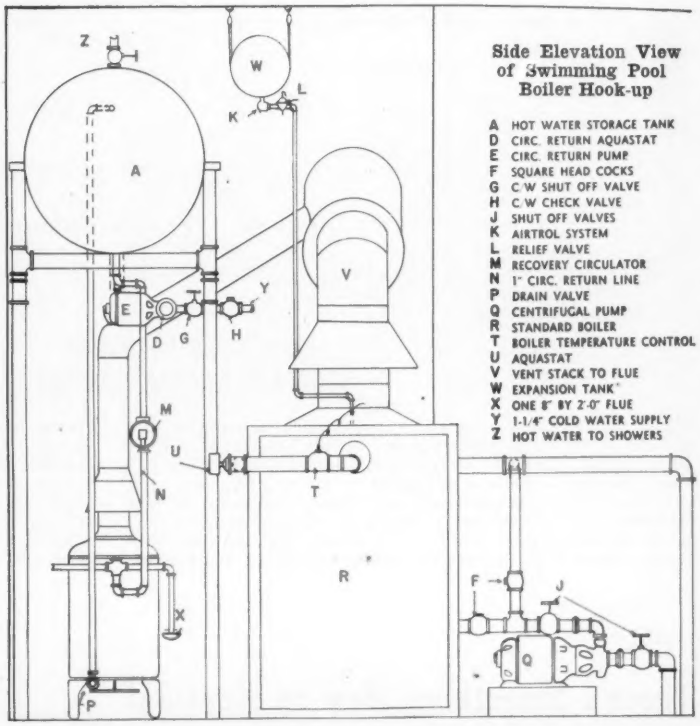


Above: In the swimming pool installation described here, a 2½ in. supply header leaves the boiler room and runs parallel to the pool for its entire length (100 ft). By the time it reaches the far end, the header has been reduced to 1 in. At intervals of 35 in. under the deep end of the pool—60 in. under the shallow end—branch supply lines leave the header, extend across the pool to complete one coil circuit and then return along the opposite side of the pool to a manifold in the boiler room—where a balance fitting and shut-off valve have been installed in each coil. Note lower right hand corner of photo at right. Actually, in the finished installation, the manifold is located in the boiler room and was at the position shown here only for testing purposes. Coils are spaced on 7 in. centers under the deep end—on 12 in. centers under the shallow end. The exact spacing and number of branch coils are not shown—though the drawing does illustrate principles of installation. A side elevation of the boiler hook-up is shown at right. Photo shows the pool while under construction.

There's Something New in Heating!

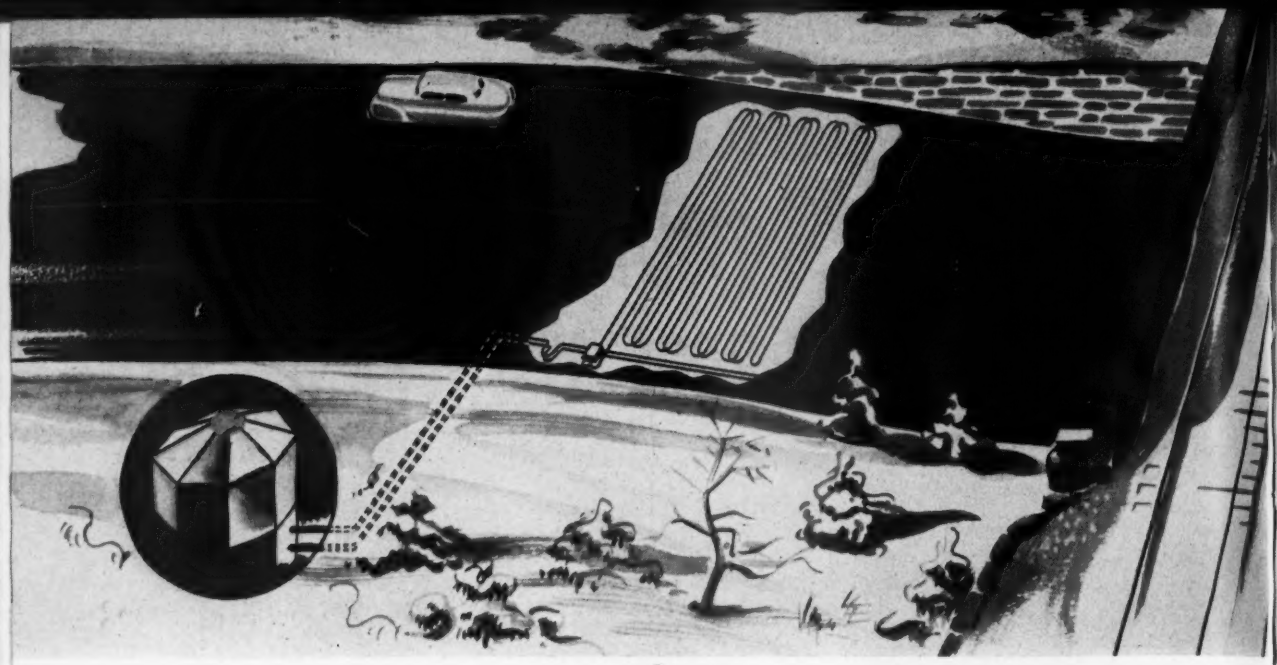
FIRST PUBLIC SWIMMING POOL WITH PANEL HEAT

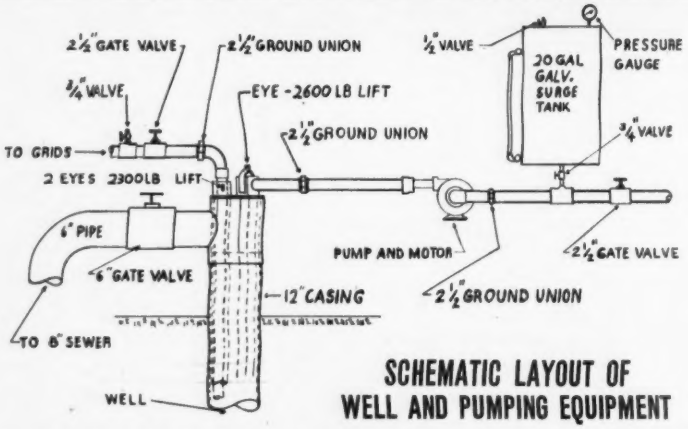
Dealer sells six to the city of Oakland. Herein, he gives a method of design and installation for a typical panel system



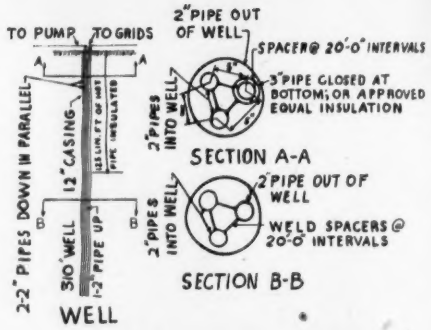
Side Elevation View of Swimming Pool Boiler Hook-up

A HOT WATER STORAGE TANK
D CIRC. RETURN AQUASTAT
E CIRC. RETURN PUMP
F SQUARE HEAD COCKS
G C.W SHUT OFF VALVE
H C.W CHECK VALVE
J SHUT OFF VALVES
K AIRTROL SYSTEM
L RELIEF VALVE
M RECOVERY CIRCULATOR
N 1" CIRC. RETURN LINE
P DRAIN VALVE
Q CENTRIFUGAL PUMP
R STANDARD BOILER
T BOILER TEMPERATURE CONTROL
U AQUASTAT
V VENT STACK TO FLUE
W EXPANSION TANK
X ONE 8" BY 2'-0" FLUE
Y 1-1/4" COLD WATER SUPPLY
Z HOT WATER TO SHOWERS





SCHEMATIC LAYOUT OF WELL AND PUMPING EQUIPMENT



HEAT EXCHANGER DETAILS

Top of page: In the first application of radiant heating principles to a public road, this stretch of highway near Klamath Falls, Oregon, will be heated in bad weather by hot water from an underground spring circulated through a network of pipe laid in the concrete. Four lanes wide, 450 ft long with an 8 percent grade, this dangerous road area is designed to remain clear and skid-free in all weather, by automatically melting up to one in. of snow or 1/10 in. of ice per hour. At press time, G. S. Paxson, official of the Oregon State Highway Commission, told Domestic Engineering that 75 percent of the total length has been completed and is now being heated. On December 7, the vicinity had a snowfall of approximately five in., with temperature falling to zero. The heated section, Mr. Paxson told us, remained free of snow and ice at all times. A 2 in. pipe is run from the well house, at left, to the pavement, and then parallel to the road for a distance of about 400 ft. In the pavement slab are imbedded 15,000 ft of ¾ in. pipe, made up into one grid for each of a series of 30 ft road panels (note cutaway drawing of typical

There's Something New in Heating!

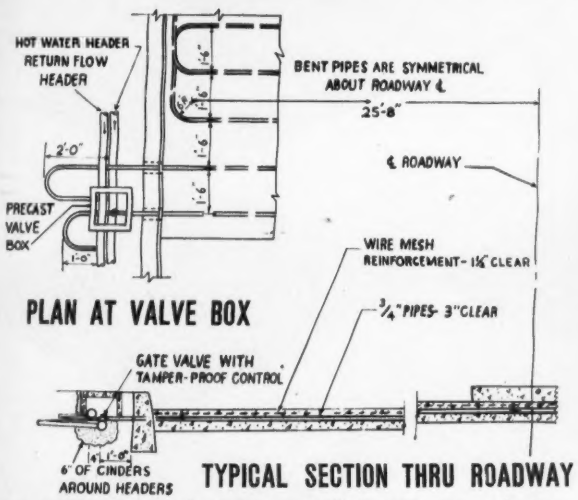
FIRST PANEL HEATED PUBLIC ROADWAY

Here's how a public road in Oregon has been designed for safe winter driving. Installation details are given in text

THE DREAM OF EVERY MOTORIST and every highway engineer—a snow-melting highway—is about to be opened for use in the town of Klamath Falls, Oregon.

In the first application of radiant heating principles to a *public* road, the highway will be heated in bad weather by hot water from an underground spring circulated through a network of pipe laid in the concrete. Four lanes wide, 450 ft long with an 8 percent grade, this dangerous road area is designed to remain clear and skid-free in all weather by automatically melting up to 1 in. of snow or one-tenth in. of ice per hour.

The stretch of all-weather heated pavement is on the Dalles-California Highway leading into Klamath Falls from the north. It passes under the Southern Pacific Railway viaduct and a few hundred feet farther crosses an irrigation ditch, thus necessitating a grade two or three percent steeper than would normally be used.



road section). The supply pipe for each 30 ft section leaves the two inch main at a valve box, completes a circuit of the section and then doubles back over the same 30 ft section as return piping, back to the return header parallel with the road and then back to be reheated. The doubling back process accounts for the unusual appearance of the coils. Detail drawings above show layout of well and pumping equipment, heat exchanger, road section and valve box. Photo at right shows road section under construction. Complete details may be found in article.

Work was started on the road late last spring after a 10-in. well had been drilled which struck a good flow of hot water at 390 ft. G. S. Paxson, bridge engineer for the Oregon Highway Commission, has announced that the stretch will be completed and in operation by March 1.

The hot well-water itself is not run through the roadway piping. Instead, a coil of 2-in. pipe is submerged deep in the well-water, which tests at 190F, or about 20 degrees below boiling temperature. In effect, the well serves as a boiler. A pump sends ordinary water and anti-freeze through the well coil, where it is heated or reheated to not less than 160F. It drops to a temperature of 70F by the time it returns to the heat exchanger.

A 2-in. pipe runs from the well to the pavement, and then parallel to the road for a distance of about 400 ft. In the pavement slab are imbedded 15,000 ft of three-fourth-in. pipe, made up into one grid for each of a series of 30-ft road panels. Each of these 15 panels is connected with the 2-in. water main by valves. The pipe carried a coating of asphalt before being laid in the concrete.

The 2-in. main and the series of grids comprise a closed circuit through which heated water is pumped—the valves insuring an even flow of water through each grid. Thus, the whole 8-in. slab of road concrete is warmed to snow-melting temperature.

The pump, thermostatically controlled, automatically begins to circulate the water when air temperature drops to freezing and continues to operate until the temperature rises above freezing. Another pump draws water from the well, since it loses its heat value as the cool water flows from the road through the heat transfer coils. Hot water then bubbles up from the earth into the well.

During the past few years, this same type of heating,

(Please turn to center of page 167)

LIKE OTHER DOMESTIC ENGINEERING dealers, Otto Vogt of Chicago is intensely interested in new developments in heating. Reports on such developments are read avidly and studied carefully. As, when and if the new techniques are proven ready for practical application, they are put into use by his firm.

But his interest in new developments does not stop there—is not limited only to those made in the laboratory by research engineers and inventors.

He has developed a number of ideas himself, all with the purpose of improving efficiency in certain procedures—*and making such procedures more salesworthy.* More on this point later.

First, let's look at some of the most unusual ideas that have been developed for practical use by the Otto Vogt Heating Company.

One is shown in the illustration above, which typifies the method used by this dealer to locate possible leaks in a panel heating system. If, for any reason, a leak is suspected, the system is drained and the hose from a tank of carbon dioxide is attached to the main supply header, which has been disconnected from the boiler. The carbon dioxide is then forced through the system at 600 psi, with the return header closed.

Vogt then puts a three ft welding rod between his teeth, his fingers in his ears and backs across the room with the opposite end of the rod following along the floor. Vibrations caused by carbon dioxide escaping through the leak signal to Vogt, by way of the welding rod, that he is getting closer to, or farther from, the area sought. The idea works, according to Vogt, who has already traced two actual leaks down to a radius of six inches. A doctor's stethoscope will serve the same purpose, and may also be used on walls or ceilings.

With leaks in radiant heating piping virtually nonexistant, the importance of this procedure may best be appreciated when viewed in connection with the Vogt merchandising program (p. 118). The carbon dioxide

There's Something New in Heating!

HOW A TYPICAL DEALER USES NEW TECHNIQUES

Here's a story of technical know-how and the way one firm puts it to work

Otto Vogt — like other Domestic Engineering dealers — is constantly applying new developments in heating to the operation of his own business, many of which he has developed himself. For example, if a leak is suspected in radiant heating pipe, carbon dioxide is forced through the system at 600 psi. Vogt then puts a 3 ft welding rod between his teeth, his fingers in his ears and backs across the room with the opposite end of the rod following along the floor. Vibrations, by way of the rod, signal location of the leak. Photo at left illustrates the method. Below: Carbon dioxide is also used for testing connections before and after concrete pouring. Vogt has other ingenious ideas now in use, but these will serve to illustrate the point. Most important, is the manner in which the ideas are used in Vogt's merchandising program. Details may be found in article.

method is also used for testing floor systems, before and during the concrete pouring. *Before* pouring, drene shampoo is applied to pipe connections and gas is forced into the system in the manner described earlier, at 125 psi. If connections are not tight, bubbles from the shampoo will reveal the point of insecurity. *During* the pouring, carbon dioxide will bubble up through the wet concrete if any connection is not secure.

Vogt has other ingenious ideas now in use, but the above will serve to illustrate the point. Most important, is the manner in which these, and other, ideas are used in the Vogt merchandising program.

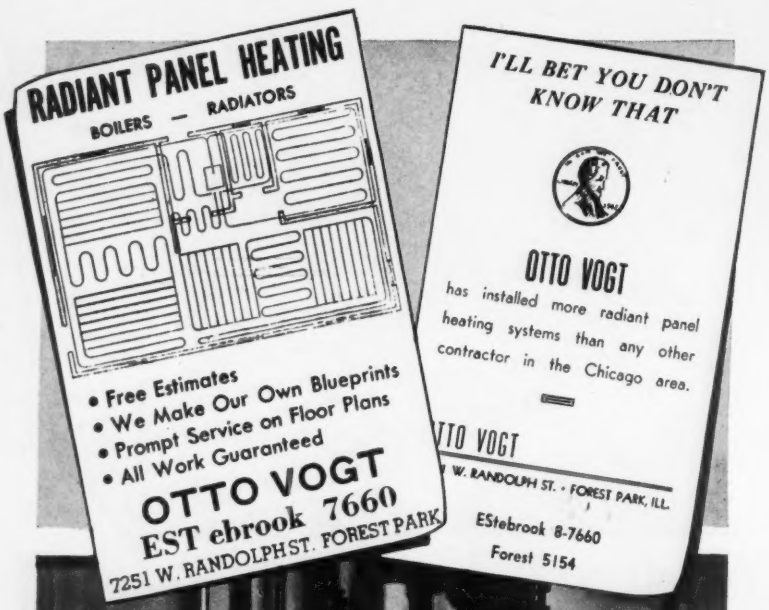
Details on the following pages.

There's Something New in Heating!

HOW A TYPICAL DEALER SELLS MODERN HEATING

Here's a merchandising success story that may have some pointers for you

At right: Remodeled from an old building, the showroom of Vogt Heating Company in Chicago stands out brilliantly against the background of trees. In the article, Mr. Vogt points to numerous advantages of his new location—such as, corner site at a busy intersection, adequate customer parking, etc., etc. Below: Not new in principle, but very effective, is the operating boiler in Vogt's showroom. It gives him an opportunity to point out salient features to interested prospects. Below left: Typical display ad used in newspapers and telephone directory by Vogt. Below right: Direct mailer (half-size) sent to architects, specifying engineers and prospective homeowners as part of Vogt's program to have his name firmly identified as a leader in radiant panel heating.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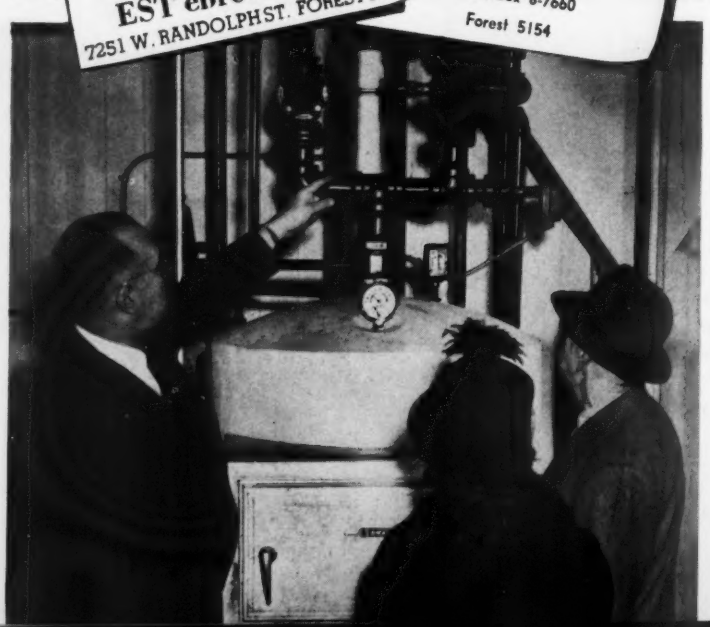


LIKE MOST OTHER DOMESTIC ENGINEERING dealers, Otto Vogt of Chicago is keeping up with the modern trend in heating equipment merchandising.

Many of his selling techniques are tried and true, based on years of experience by other dealers in the plumbing and heating industry. Still others are strictly original, tailored to fit the scope of his own operation.

In some cases, the ideas in use by Vogt may be adopted—in whole or part—by other DOMESTIC ENGINEERING dealers, so let's see how his merchandising program works.

First of all, the newest techniques in design and installation of modern heating systems, outlined on preceding pages, are talked-up fully in all sales presentations. For example, here's how one technique, now in use by the Vogt organization, has proved its worth in many actual cases. Many prospects for radiant heating jobs, ac-

cording to Vogt, ask the question, "Will pipes imbedded in the ceiling, wall or floor develop leaks after a few year's operation?"

Up until recently, his stock answer was, "Not if good materials are selected, and proper principles of design and installation are maintained." For most prospects, this answer from a reputable heating contractor was sufficient to dispel any doubt. However, as any reader knows, there are others who will always come back with, "Just suppose there has been an error in design or installation, or suppose a workman from another trade damages the pipe while pouring concrete or applying plaster. . . . Would this mean that my entire floor would have to be torn up to find the leak?"

For this question, Vogt has what he now believes to be the perfect answer. He outlines the system for locating leaks (preceding page), which convinces even the most skeptical prospect that only one small section of floor, wall or ceiling would have to be disturbed in order to make the needed repair.

The psychological effect of this assurance has been tremendous, according to Vogt, who has turned many doubtful prospects into enthusiastic customers through its use. In the same manner, his thorough method of testing, described on preceding pages, is also accepted by most customers as extra insurance against any future damage to the system. The above will serve to illustrate how technical developments are used in Vogt's merchandising program, with other design and installation techniques being used in the same manner. All play a contributing part to the success of this dealer's entire merchandising program.

Other selling techniques in use by the Vogt organization are more conventional. Biggest single feature, perhaps, is the new Vogt showroom. Remodeled from an old building, the new front is of striking white frame—designed in keeping with its residential location.

Mr. Vogt pointed to a number of advantages in connection with his new place of business.

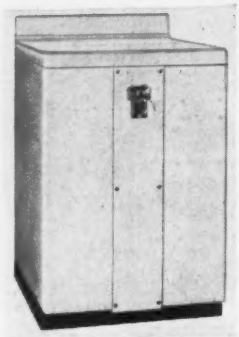
First, it is located at an extremely busy intersection of two main arteries of traffic. Chances are that nearly everyone traveling between Chicago and its western suburbs will see the store at one time or another. More than just seeing it, most of the people will perhaps be impressed by its distinctive appearance—or at least that group of homeowners or prospective homeowners who may have more than just a passing interest in new heating equipment.

The showroom is brilliantly lighted until midnight,

(Please turn to top of page 170)

News of New Products

Table-Top Electric Water Heater



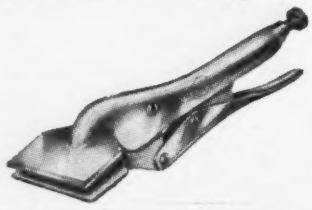
Product: Automatic electric water heater with table-top cabinet in 30 and 40 gal sizes.

Features: Model is designed to fit with modern kitchen cabinets. Recessed toe space at bottom allows working close to jacket without scuffing shoes. Jacket sides and top are of white enameled steel, which may be cleaned by wiping. Back-splash to prevent small articles from dropping behind heater is included. Tank is lined with glass fused to the metal, and is insulated to prevent heat losses.

Manufacturer: A. O. Smith Corporation, Milwaukee.

● ● ●

Sheet Metal Gripper



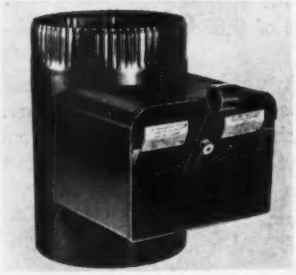
Product: Sheet metal tool utilizing locked grip.

Features: Locked grip helps eliminate muscular exertion required in hand-gripping the handles of the ordinary seamer or tong, and makes possible more accurate and smoother bending and shaping, it is claimed. Can be adjusted to toggle action if locked grip is not required. The tool accommodates material up to 1¾ in.

Manufacturer: Peterson Manufacturing Co., DeWitt, Neb.

● ● ●

Barometric Draft Control



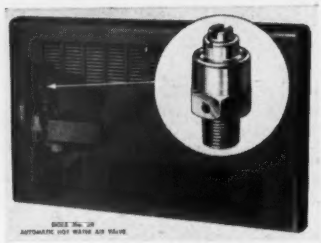
Product: Barometric draft control for heaters and furnaces.

Features: Draft control works for either horizontal or vertical flue pipes, according to the manufacturer. When changing from horizontal to vertical it is necessary only to remove the adjusting nut and shift the counterweight from the horizontal to the vertical stud. The shank of the counterweight is calibrated for horizontal installation on one side, for vertical on the other. Opening is of square or rectangular body construction, with the van mounted on an angle.

Accurate control of the draft through a wide range of draft fluctuations is possible, according to the manufacturer.

Manufacturer: Skuttle Manufacturing Company, 4099 Beaufait Avenue, Detroit 7.

Automatic Hot Water Air Valve



Product: Automatic air valve for hot water radiators.

Features: The new valve is claimed by manufacturer to eliminate air from convectors, radiators, mains, baseboard radiators and panel heating units in completely automatic operation. May be used for both gravity and forced circulation hot water systems and with new or with existing heating systems. Coin or screwdriver can be used for setting. Can be used as fully automatic air eliminator, as a manual shut-off or for manual venting, according to manufacturer. It is claimed that these can be operated without danger of staining grills or damaging floors.

Literature Offered: Illustrated mailing pieces.

Manufacturer: The Dole Valve Company, 1933 Carroll Ave., Chicago 12.

● ● ●

Vent Cap

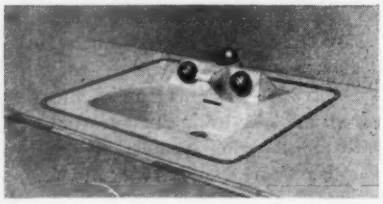
Product: Vent cap for oil and gas burner chimneys.

Features: New sheet metal vent cap is set nearly flush with roof, and maintains an even pull regardless of unusual draft conditions or high velocity winds, manufacturer claims.

Manufacturer: Hammel Radiator Engineering Co., 3348 Motor Ave., Los Angeles.

● ● ●

Counter-Top Lavatories

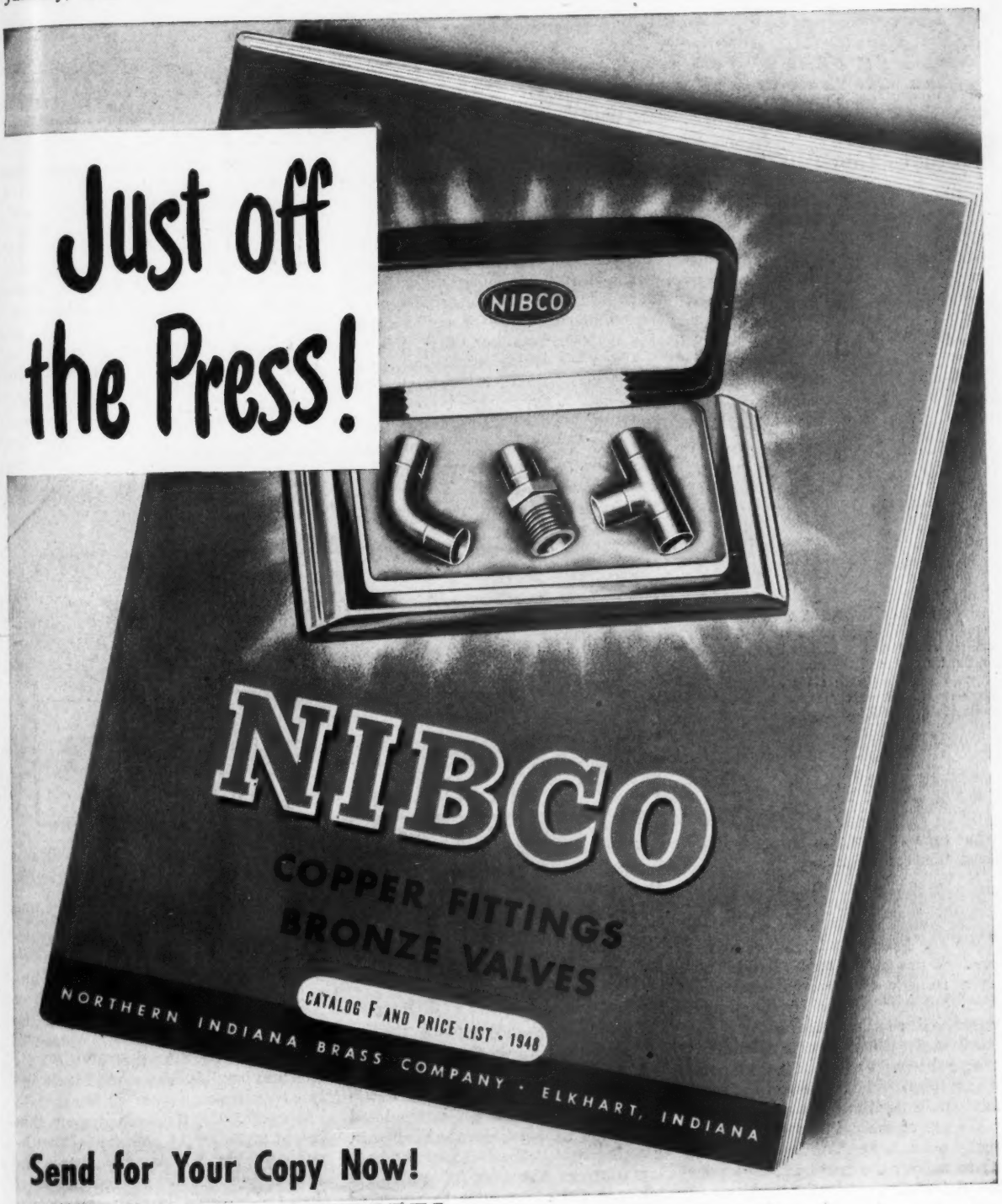


Product: Counter-top lavatories for use in bathrooms, powder rooms or bedrooms.

Features: These lavatories are especially designed to fit into counter-tops of tile, linoleum, glass, hard plastic, wood or other material. Made in two styles with flat rim flush with counter top, and raised angle panel for the controls and spout. Both models are of vitreous china, with chromium-plated brass fixtures. One model has vitreous china spout and the other has chrome spout. Both models have lever-action waste controls. Overall size is 27 by 20 in., with basin 21 by 11 in. Multiple units can be installed if desired.

Manufacturer: Crane Co., 836 S. Michigan Ave., Chicago 5.

(Please turn to page 173)



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Questions From Readers

Ventilating an Apartment

To the Editor:

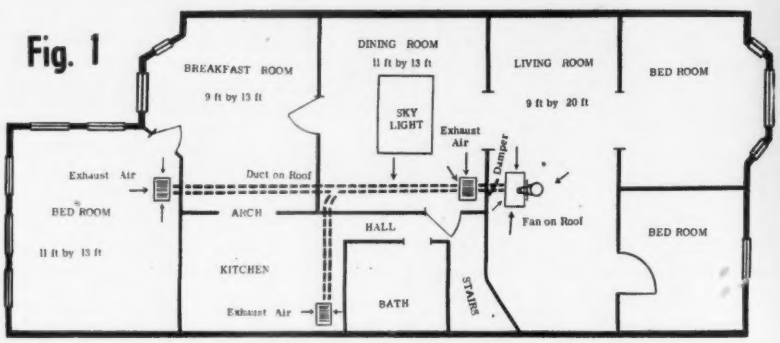
You may be able to help me to solve a problem. The apartment in which I live is very hot, especially during a heat wave. I am looking for some type of humidifying unit to draw the hot air out of the apartment. Enclosed you will find a sketch (see Fig. 1) of the apartment giving the size of the rooms and those rooms to be humidified. The apartment is situated on the second floor of a two-family house (one flight up) flat roof, attached houses on either side.

I would appreciate any information or suggestions you can offer as to what type of unit can be used to relieve this condition.

N. Y. P. L.

Perhaps the fact that window ventilator fans with water soaked filters are used to cool homes in arid areas confused our reader, but his choice of the word "humidify" is misleading. Suggestions for ventilating his home to relieve oppressive heat are given in our consulting engineer's answer.

Fig. 1



To the Reader:

We are somewhat intrigued by our reader's use of the term "humidifier" as a remedy for overheated rooms during hot weather. A humidifier might reduce the temperature of the room slightly but it also would increase the relative humidity to a point where it would be likely that the remedy would be worse than the disease.

We are of the opinion that what he really needs is ventilation (and lots of it) to remove the heat build-up under the flat roof.

On Figure 1 we have shown (in dashed lines) how an excellent exhaust system could be installed which we think should be sufficient in size to handle about 10,000 cfm. This could be arranged to take 4,000 cfm from the kitchen and 3,000 cfm from each of the other two rooms. The grilles would be about 24 in. by 24 in. in size and the duct from each would be 20 in. by 24 in. with the main duct increasing in size to 36 in. by 36 in. at the fan.

The ducts could be run in the space under the roof and above the ceiling—if such space exists and is accessible—or may be run on the roof. The fan should have a capacity of 10,000 cfm against a static pressure of about ¼ in. It should be of weatherproof type. A switch to control the fan can be located at any desired point on the floor below.

The effect of this installation will be to draw air into the top floor (through all windows which may be open) and to pass this air through the rooms where it picks up heat accumulated from the roof and removes this heat from the house. From our experience with such systems we recommend that the amount of air suggested should not be reduced, for, while any ventilation would be an improvement, it takes quite a lot of ventilation to be really effective.

Warm Air Duct Insulation

To the Editor:

I would like your opinion on insulation of forced warm air ducts.

I have discussed this matter with various heating men. Some advocate that heat loss through uninsulated ducts is beneficial under the floor or in the attic, due to the fact that the heat loss through the floor or ceiling is lowered. Others use one thickness of air cell asbestos insulation, and some wrap their pipe with several layers of 10 or 12 lb asbestos paper.

My reference material indicates that several layers of 10 or 12 lb asbestos paper create more heat loss than uninsulated ducts; and one layer of air cell asbestos gives a slight saving of heat loss.

I might mention that those advocating insulation use round duct work.

Personally, I am inclined to favor uninsulated square ducts because we do not have exceptionally cold weather here on the West Coast, not under 30 deg, and the homes are not insulated in the wall and attic spaces. On the other hand, if our homes were insulated, I believe that the duct work should be insulated with three or more layers of air cell asbestos.

It would be of great assistance to have your opinion on duct insulation in this area. Thank you.

Calif. J. D. C.

To the Reader:

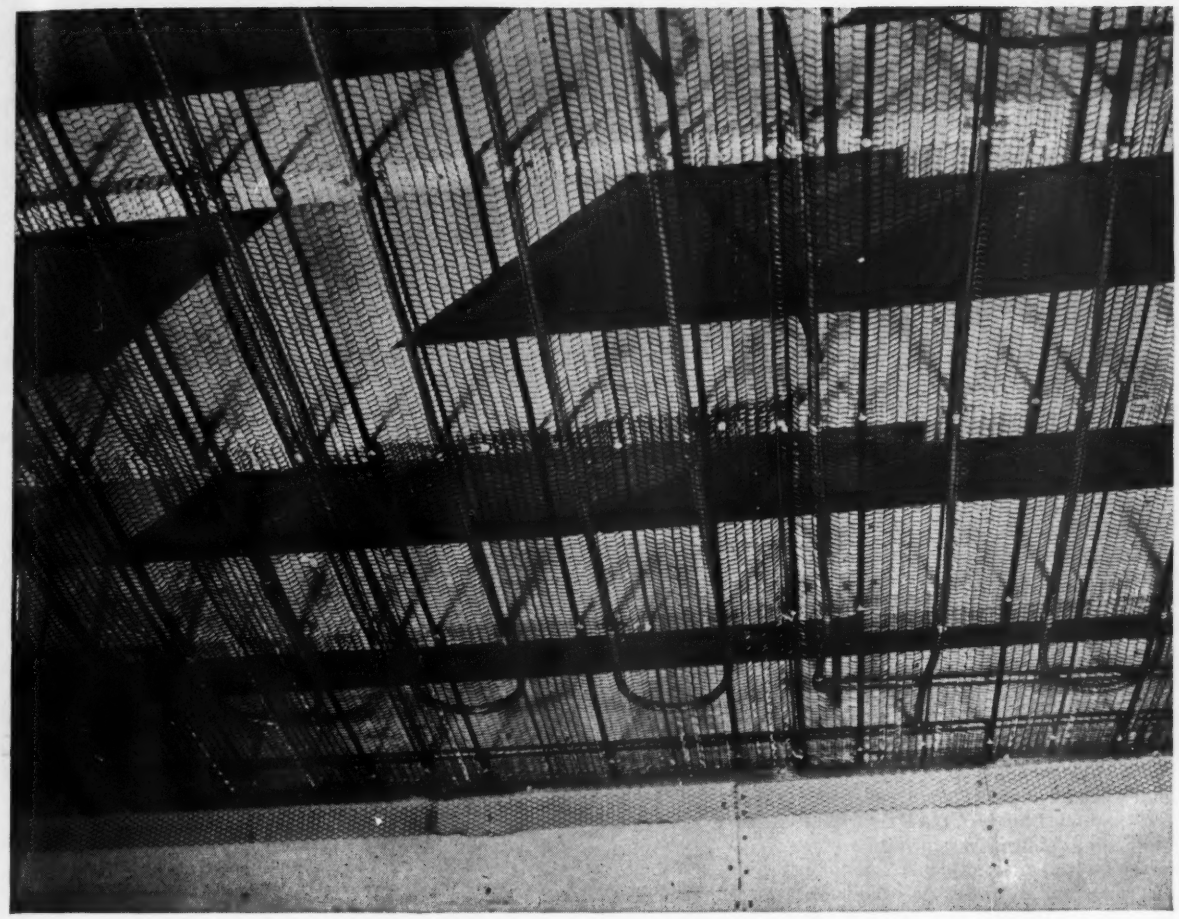
It is quite true that the surface on a radiator or pipe emits less heat when the surface is bright and shining than when it is rough and dull. It also is true that this holds no matter what is under the surface.

This means that a radiator painted with aluminum bronze may have the heat emission reduced 10 percent or more when compared with the unpainted surface, but when a coat of dull black paint is used to cover the aluminum paint the heat emission will be brought back to that of the bare iron and possibly may exceed it slightly.

Superficially, it would appear that bright pipes might well be left without covering, but as time passes the surface through age and collection of dust and possibly through some corrosion will lose its luster and brightness. It will then emit much more heat due to the dull surface condition.

We entirely agree with you that, if pipes are to be covered at all, they should be well covered, such as being insulated with 3 ply asbestos board, wired on, and the joints pointed up with a plastic asbestos having a small amount of Portland cement added to give it strength.

(Please turn to page 124)



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In radiant panel heating, just as in water supply and other types of heating systems, *trouble always costs more than Revere Copper Water Tube.* The permanently smooth interior of this tube reduces frictional resistance to a minimum. It is highly resistant to corrosion attack from water in the heating system; hence rust accumulation is eliminated. And the coefficient of expansion of Revere Copper Water Tube is almost identical with that of plaster, which is an important advantage in wall and ceiling installations.

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Questions From Readers

(Continued from page 122)

Sectional Boilers

To the Editor:

This comment is in reference to your answer (in the December issue) to R.D.S. concerning the possibility of cracking a cast iron sectional boiler.

Recently in a verbal examination of 15 steam-fitters seeking advancement in civil service status the following questions were among those asked:

1. What is the Hartford or Underwriters Loop, and where, how and why is it installed?

Ans.: In brief, this is an equalizer between the steam supply header and the return opening in the boiler, with the returns connected into it not lower than the low water cut-out line. On a hand-fired boiler the bottom of the return connection to the equalizer pipe shall be level with 1½ in. of water in the gage glass. The purpose is to maintain a proper level in the boiler without the use of check valves in the returns. (All of the men were familiar with this.)

2. Assume that you are sent to install a circulating pump for a hot water system, automatic heat, and you ascertain that all of the material is on hand, including tools, etc., and you are ready to begin the installation. What is the first step?

Ans.: The first step is to pull the electric switch so that fire cannot be started with a waterless boiler. (This was more of a stickler, and took more thought, but finally all of the applicants answered correctly.)

3. Assume that you are to replace an open expansion tank with a pressure tank, or install oil, gas or stoker-firing in place of hand-firing, what precaution should be taken in regards to the boiler, particularly if it is a round iron boiler?

Ans.: Loosen the draw bolts so as to provide for expansion and contraction. (All answered correctly, although some did not grasp the complete intent of the question.)

In our own experience we always instruct our men to do this, because we have encountered many boilers with broken lug sections. In fact, one sectional boiler broke while we were filling it after it had been out-of-service one winter. The manufacturer's engineers declared that the rust, scale, etc., built up between sections had made it impossible for any expansion to occur, and the draw bolts were pulled up tight.

Therefore, in view of our experience it appears logical to assume that there is a risk where automatic heat or closed tanks are installed, and the contractor and his employees should take the proper steps in behalf of the owner of the property.

Minn. W.W.H.

New Control Idea

To the Editor:

I have the following idea about a stoker-fired warm air furnace with a separate fan and control. I want to know if it has been tried, and what you think of the idea. What are the drawbacks to it, if any?

My idea is to put the stoker on the bonnet limit control and set the heat limit to around 175 deg cut-out and 150 deg cut-in points, and change the blower control to the room thermostat so that when the rooms need heat the fan will be turned on by the thermostat and shut off when the rooms are up to the thermostat setting. The stoker timer could be used as the relay control between the low voltage thermostat and the high voltage for the fan motor.

Neb. C. N.

To the Reader:

The steam boiler when stoker-fired would be controlled by the room thermostat with pressure limit controls to prevent undue pressure being generated by the stoker and a timing device to prevent the fire in the stoker going out during nights or at times when the outside temperature is sufficiently high to make artificial heat unnecessary.

The hot water boiler would be similarly controlled with temperature limit thermostats and a room thermostat combined with a timer for stoker operation and to prevent the fire going out. With a warm air furnace, the usual method is a thermostatic limit control and operation by a room thermostat and a timer to keep the fire from burning out when no stoker operation is needed.

Our reader, however, has an added element to be taken into consideration, this being the circulating fan. This fan should be treated in a manner similar to that used for a hot water heating boiler with a circulator. In such a case the room thermostat controls the circulator and a drop in temperature in the water cools down the temperature of the water in the boiler causing the drop in temperature to operate a thermostat on the boiler which controls the stoker.

For a warm air furnace, similar treatment can be used by allowing the room thermostat to operate the fan, a thermostat in the top of the furnace bonnet to control the operation of the stoker, and the room thermostat to operate the fan.

We would suggest, however, the addition of still one more thermostat in the bonnet to start the fan whenever the air temperature in the bonnet exceeded, say, 150 deg, to insure against overheating the furnace when the rooms required no heat and the stoker is practically banked but still is generating sufficient heat to overheat the air in the bonnet. It will be noticed that this is very close to what our reader suggests except that there is one additional thermostat to prevent overheating in the bonnet.

All electrical controls usually operate on a current of 20 V, obtained from the ordinary electric circuit through a small transformer, which low voltage current energizes relays controlling the circuits operating at higher voltages.

Heating Swimming Pools

To the Editor:

I would like to know a few details about heating swimming pools, particularly the calculations about heat loss, to maintain the heat after the pool has reached the desired temperature.

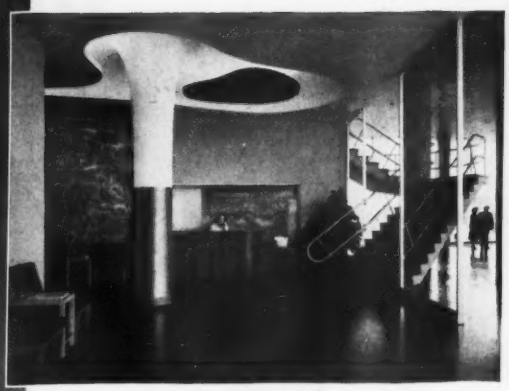
Calif. M. K.

To the Reader:

We believe that the ordinary inside pool equipped with a pool circulation pump which rotates the water from the pool through filters and sterilizing equipment usually has an instantaneous heater in the circuit, which can be employed to raise the temperature of the pool.

Actually, the use of this heater seems to be limited to times when the pool is emptied and refilled with city water which may be as low as 40 deg. After this water has been circulated through the instantaneous heater a sufficient length of time to raise the pool temperature to 70 deg, the heater no longer is used, since the water is enclosed within a building where the surrounding temperatures are always 70 deg or over.

While there undoubtedly is a small amount of evaporation and of water lost via the scum gutters, this does not seem to be sufficient to noticeably drop the temperature of the water.



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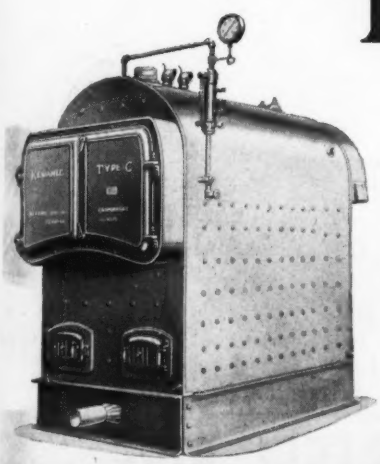
Harris Armstrong, Architect
Ferris & Hamig, Engineers
Sodemann Heat and Power Co., Heating Contractors

KEWANEE☆ STEEL BOILERS



Unique in design, this outstanding structure is purposed to serve both administrative and display functions of the American Stove Co.

The outline of construction materials and equipment reads like a "Who's Who" of American industry. Significantly the heating boilers are KEWANEE.

Installed are two Kewanee Boilers, Type "C", 14,580 feet capacity, for gas firing . . . the *preferred boiler* for heating America's important large buildings.

☆ Reg. U. S. Pat. Off.

KEWANEE BOILER CORPORATION

BOILERMAKERS 80 YEARS KEWANEE, ILLINOIS

Branches in 60 Cities—Eastern District Offices: 40 West 40th Street, New York City 18

Division of American Radiator & Standard Sanitary Corporation

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

Yes, it's Youngstown!

Dependable Steel Pipe ... The Plumber's Friend

FOR 45 years, Youngstown Steel Pipe has served plumbing and heating contractors dependably--enabling them to furnish adequate water and heating systems to customers at lowest cost.

Whether you use a few feet or thousands of miles of Youngstown Steel Pipe, you can depend on its uniformity--uniform in metallurgical and chemical properties for easy, accurate bending, cutting, welding and threading--uniform in diameter and roundness--cut to uniform lengths--uniformly smooth inside for minimum friction--in short, *uniformly satisfactory.*

Youngstown STEEL PIPE

THE YOUNGSTOWN SHEET AND TUBE COMPANY
Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices - - Youngstown 1, Ohio
Export Office-500 Fifth Avenue, New York

PIPE AND TUBULAR PRODUCTS - CONDUIT - BARS - RODS - COLD FINISHED CARBON AND ALLOY BARS - SHEETS - PLATES - WIRE - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - RAILROAD TRACK SPIKES.

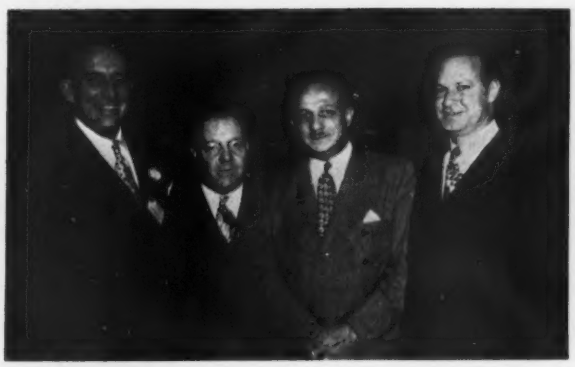
AUTOMATIC HEAT and AIR CONDITIONING Section

Warm Air Convention . . .

Attending the recent warm air convention, left to right, C. A. Olsen, president, C. A. Olsen Mfg. Co., Elyria, Ohio; Carroll M. Baumgardner, vice president for sales, The National Radiator Company, Johnstown, Pa., and H. S. Beagle, The Miller Co., Meriden, Conn.

Lin J. Krause, Minneapolis-Honeywell Regulator Co., Minneapolis; John F. O'Donnell, sales manager, Stokol Stoker Co., Dayton; N. W. Swanson, vice president, McDonnell and Miller, Inc., Chicago, and Walter Sormane, gen. sales mgr., Conco Engineering Works, Mendota, Ill.

Attending the warm air convention at Cleveland, left to right, were Prof. S. Konzo, University of Illinois; William W. Johns, Johns and Son Furnace Co.; W. D. Redrup, Majestic Company, and 2nd vice president of the association, and Bruce McLouth, Dole Valve Company, Chicago.



C. L. Hewitt, general sales manager, Mueller Furnace Co., Milwaukee; Roy Walker, president, Buddlee Company, Pittsburgh; Floyd H. Talmon, president, Domestic Heat and Equipment Corp., Cleveland, and M. J. Siebert, American Tank and Fabricating, Cleveland.

A COMPREHENSIVE appeal to the business interests of all representatives of manufacturing, wholesaling and retail-contracting phases of the industry was made by speakers at the 35th annual convention of the National Warm Air Heating and Air Conditioning Assn., held Dec. 9-10 at the Hotel Cleveland, Cleveland.

Dan Schmidlin, Schmidlin Brothers Heating Company, Toledo, Ohio, discussed opportunities offered warm air heating contractors in promoting public demand for continuous air circulation warm air heating.

"The Biggest Sales Job in All History" was discussed by Hamilton Eames, American Economic Foundation, New York City.

R. A. Ellison, traffic manager, Service Bureau Company, Cincinnati, and traffic consultant for the association, outlined latest developments in the proposed "uniform" traffic classification ratings on warm air heating products.

(Please turn to page 130)

"I don't care what words you use to describe the thermostat, I know from my experience in the heating business that the *Penn folks found out many years ago how to give the close temperature control that spells real heating comfort in all kinds of weather.*

"My customers are not plagued with alternate 'cold 70' shivers and overheating, because the Penn thermostat *anticipates* room temperature changes and keeps the burner feeding just the right amount of warmth for real comfort. Furthermore, I've always preferred the simplicity of the two-wire installation, the snap action contact structure and the all-around reliability of Penn thermostats, proved in 15 years of actual operation with every type of heating equipment."

Take a tip from this typical experience of heating dealers—give your customers the comfort, and yourself the satisfaction and profit which the Penn *original heat anticipating thermostat* assures. **Penn Electric Switch Co., Goshen, Indiana.** Export Division, 13 East 40th Street, New York 16, N. Y., U. S. A. In Canada, Penn Controls Ltd., Toronto, Ontario.

Here's What Penn Heat Anticipation Does...

* **Holds the temperature at selected level—within one degree or less.**
* **Avoids "cold 70"; ends discomfort of "zig zag" heating.**
* **Automatically compensates for outside weather conditions.**
* **Provides more frequent, short burner operations instead of longer runs and standby periods, assuring even flow of warmth for greater comfort and fuel economy.**

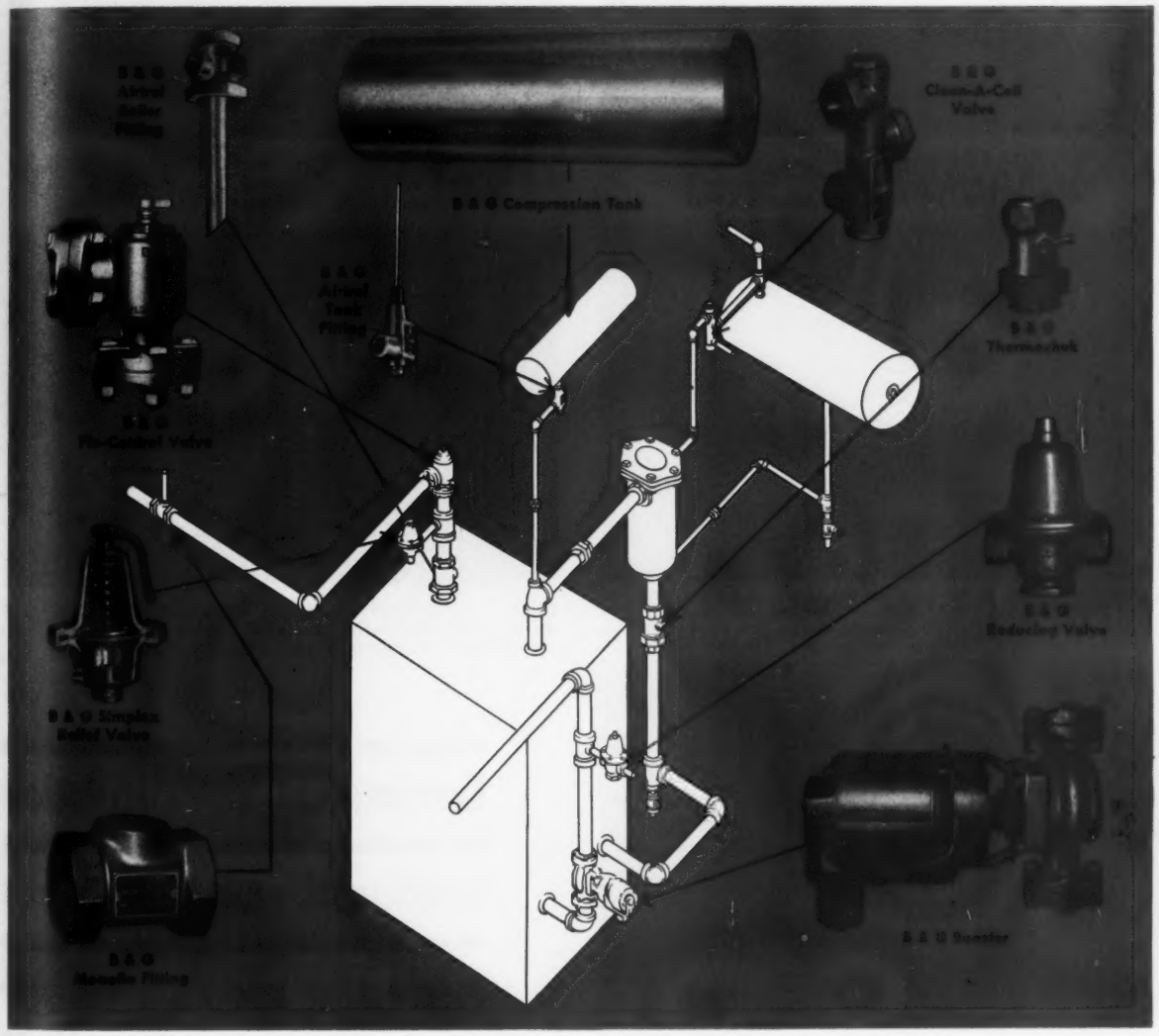
It "hugs" the selected level for closer temperature control

PENN AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

Hydro-Flo* PRODUCTS

Everything for Forced Hot Water Heating Systems



You benefit in two ways when you concentrate your purchases on B & G *Hydro-Flo* Products. First, by a line of products recognized everywhere for their superiority of design, materials and workmanship. Second, by utilizing a single source of supply which eliminates time-wasting shopping and gives you a completely integrated installation with one manufacturer's guarantee.

SEND FOR CATALOG
of B & G Hydro-Flo *forced hot water heating systems.*

This is obviously the easy, safe and intelligent way to buy.

Remember, too, that no products are better than the servicing facilities of the manufacturer. B & G *Hydro-Flo* Products are distributed on a nation-wide scale, with adequate service always available.

The "B & G" emblem is the symbol of quality . . . tested and proved by years of actual field operation.

BELL & GOSSETT Company

Dept. AV-1
Morton Grove, Ill.

*Reg. U. S. Pat. Off.

Left to right, H. W. Somershoe, The Armstrong Company; Rudy Guenther, Chicago; E. P. Manning, The Armstrong Company, Detroit, and Ralph W. King, The Armstrong Company, Chicago.

Left to right, Carl P. Williams, vice president, Orton Heating Company, Barberton, Ohio; W. L. Orton, president, Orton Heating Co., and R. A. Gulick, president, The May-Fieberger Co., Newark, Ohio.

Photographed at the recent warm air meeting, left to right, were Frank Meyer, Meyer Furnace Company, Peoria, and Hugh Thompson, president, Thompson Heating Corp., Cincinnati.

Others at the warm air meeting, left to right, were E. B. Maire, sales manager, General Controls, Chicago; R. S. Penn, Penn Electric Switch, Goshen, Ind., and Mel Lewis, Cleveland, General Controls.

Jim Wallace, Lau Blower Co., Detroit; Jack Gillen, Gilcor Products, Dowagiac, Mich.; Carl Millson, Temperature Equipment Corp., Cleveland; K. F. Russell, Palmer Donavin Mfg. Co., Columbus; Larry Redford, Jackson Church Co., Saginaw, Mich., and John Burrows, Lau Blower Co.

Continuous air circulation meeting. Members urged to offered in program to sell

(Continued from page 127)

Gene Flack, sales counsel and director of advertising, Sunshine Biscuits, Inc., New York City, outlined the urgent need for sales and promotion in today's business program.

A special address outlining the place of the wholesaler in the heating industry was given by John E. Phillips, treasurer, Stelwagon Manufacturing Company, Philadelphia. The wholesaler, said Mr. Phillips, is the retailers' warehouse, credit bureau, shipper and expediter. Present business operations, he said, cannot function efficiently without the wholesaler.

Recent developments in the association sponsored research program at the University of Illinois were discussed by Robert W. Roose and Norman Buckley, special research assistants in mechanical engineering at the University. Mr. Roose talked on the results of "Ceiling Panel Heating vs. Conventional Forced Warm Air Heating" in the research residence with an unheated basement. Mr. Buckley discussed "Performance of the Blower and Resistance of the Furnace when combined into a Blower-Furnace Unit" and "Balance of Branch Air Quantities and Air Temperatures when Total Air Quantity is Varied in a Winter Air Conditioning System.

G. A. Voorhees, application engineering director, NWAHACA, discussed the 1949 indoor comfort con-

Left to right: N. W. Swanson, vice president, McDonnell and Miller, Inc.; H. Aronson, Dole Valve Co.; V. W. Blackney, director of sales, U. S. Radiator Corp.; J. F. Lund, Dole Valve Co., Chicago.

Among those attending the recent annual warm air meeting, left to right, were C. L. Hewitt, Mueller Furnace Co.; C. A. Olsen, C. A. Olsen Mfg. Co., and C. L. Rowley, Owens-Corning-Fiberglas.

Left to right, James P. Scott, Comfort Equipment Corp., Chicago; W. W. Johns, Johns and Son Furnace Company, Urbana, Ill., and K. B. Thorndike, vice president, Detroit Lubricator Co., Detroit.

Attending the recent warm air convention, left to right, were Clifford Anderson, sales manager, The Armstrong Co., Chicago, and Roy J. Lindros, district manager, Indianapolis, Lennox Furnace Company.

Among those attending the recent warm air convention at Cleveland were, left to right, J. F. Lund, air valve sales manager, Dole Valve Company, Chicago; B. McLouth, sales, Dole Valve; Thomas B. Chase, vice president, Dole Valve, Chicago, and H. Aronson, sales, Dole Valve.

theme stressed at warm air

take advantage of points

warm air heating equipment

ferences—dealer training activities during the past year.

Actual industrial experience of the Taft-Hartley law in action was discussed by Wilbur R. Meredith, industrial consultant, Cleveland.

The following are excerpts from the address on continuous air circulation by Mr. Schmidlin.

In the few minutes alloted me, I am not going to get into the technical details of making continuous air circulation adjustments, but rather confine my remarks to continuous air circulation as dealer prestige builder, or rather how it affects furnace sales.

I see men in this room who have been at this business many years. I have met them at National Warm Air Heating and Air Conditioning Assn. meetings since the very first convention. We have talked over problems including this matter of continuous air circulation.

I often wonder if we really appreciate this warm air heating and winter air conditioning industry and the National Warm Air Heating and Air Conditioning Assn. Do we, as dealers, appreciate what we have in manufacturers of heating equipment? We, of course, mean the manufacturers of the heating unit, manufacturers of blowers and controls.

The association has gone all out in supplying the dealer with technical data, in cooperation with the University of

(Please turn to page 133)

FROM EVERYWHERE COME THESE REPORTS OF AMAZING ECONOMY!

THE NEW WINKLER **LP***

***LOW PRESSURE OIL BURNER**

1. BURNS AS LITTLE AS ½ GPH
2. NOT CRITICAL OF OIL
3. SAVES OIL BECAUSE OVER-SIZING IS NOT NECESSARY
4. ENDS USUAL SERVICE TROUBLES

Read these actual case histories as reported by Winkler LP* Oil Burner dealers . . .

From Conshohocken, Pennsylvania

"Removed High Pressure Oil Burner with 1.65 gallon nozzle, 675° stack temperature, CO_2—7%. Installed in same heater a ¾ GPH Winkler Low Pressure Oil Burner, stack temperature 350°, CO_2—10%."

From La Porte, Indiana

"I have replaced a number of burners with low pressure Winklers and have never gone below 25½% saving in fuel oil. On one job, I removed a 1.65 burner of the high pressure type from a new steel furnace and replaced it with one of *your ¾ gallon low pressure units, reducing their oil bill over 60%.*"

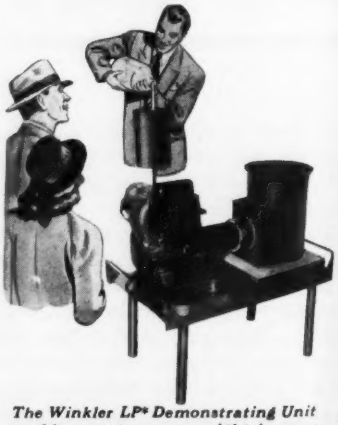
From Springfield, Ill.

"We have yet to have a job running over 425 stack temperature. The over-all efficiency is so good that at times, it is rather embarrassing to even mention. The bulk oil dealers are more than anxious to see the installation of these burners because it affords them an opportunity to obtain the lower grades of fuel oil which appears to be more plentiful than the No. 2 and 3 oil."

From Providence, Rhode Island

"We are pleased to enclose copies of several efficiency tests which we recently made of WINKLER Low Pressure Burners installed as conversion units in several types of boilers. You will note that the lowest over-all efficiency is 81% in one boiler only, and that the remainder are all over 85%."

MAKE A NOTE • Booth 1246-1347
See the complete Winkler Heating line at the Heating and Ventilating Exposition Chicago, January 24 to 28



The Winkler LP Demonstrating Unit enables you to prove—right in your own show room—the amazing efficiency of this burner.*

WINKLER

Automatic Heating Equipment

U. S. MACHINE CORPORATION • Dept. O-F1, Lebanon, Indiana

Attending the 35th annual convention of the National Warm Air Heating and Air Conditioning Assn., at Cleveland, left to right, were R. A. Friestad, Field Control Division, H. D. Conkey and Co., Mendota, Ill., and F. P. Maxwell, Crise Manufacturing Co., Columbus, Ohio.

Also attending the warm air convention at Cleveland, left to right, were Robert K. Thielman, Federal Housing Administration; G. L. Cheasley, a railroad plant manager, and Al Galaba, chief engineer, Morrison Products, Inc., Cleveland.

(Continued from page 131)

Illinois, and placed at his disposal an unlimited amount of information. As I have stated on many occasions, the association has engineered the engineering out of this business. Manufacturers of units have given considerable money and talent, and I am most happy to see that many manufacturers of heaters are encouraging the dealer and jobber to make the installations on the basis of continuous air circulation. Some are now publishing information on refinements that make for a good installation. This is a step forward in the right direction.

Certainly we cannot overlook the manufacturers of registers, because they have contributed much with the directional flow grills to tie in with the continuous air circulation program. It is impossible in some cases to convert an old installation to continuous air circulation unless proper directional grills are installed. This same thing is true with control systems. Manufacturers of selective and sensitive thermostats have done a great deal. In fact, without combining the various accessories such as controls, grills, blowers, motors, etc., conversion from intermittent to continuous air circulation would be impossible.

But, have we taken advantage of the text books, bulletins, short courses, three day schools and equipment which have been made available to us in the last four or five years? Where, I ask, can we do so much good—creating good will with the customer which can mean so much to us in future sales?

One of these days, yes, this very day—right now, we must go back to selling. The gravy train is over. Too few forced warm air heating systems have been adjusted by the dealer from intermittent operation to continuous air circulation.

It's a job—but isn't anything a job that's worth while? To take any one of the 2,500,000 forced warm air heating installations which has been installed and do a good job of changing it to a continuous operation, is certainly a job.

One cannot slow down a blower, synchronize the limit control, cut down the oil, gas, or coal feed in a few minutes. It can't usually be done in one trip. It is not always possible to satisfy a customer in two trips. It may be necessary to change a register or possibly install one or more directional flow grills or more sensitive selective controls. With a proper control system, the customer will have no more blasts of heat followed by a cooling off period, no more cold floors, no more air stratification, no more drafts. Dirt on walls and ceilings will be reduced. And, of course, more all around comfort and efficient operation will be had. Where can you do so much good for so little effort? The time and study given to an installation of this kind will pay dividends.

I have had eight different heating plants installed in one home. Many years ago I ran my blower from the holiday season to the balance of the heating season. Was the operation entirely satisfactory? Of course not. It was necessary to make many changes. But at that time there were no furnacestats, no variable speed motors, no directional flow grills and no selective, sensitive thermostats. All we had was baseboard grills. We had only round furnaces.

Naturally, it is not good practice to discharge low temperature air directly upon an occupant. To really eliminate air stratification, the excessive high temperature at the ceiling, and the cold floors, one must move air. You can mix oil and water with an egg beater. You can mix air if you handle enough of it.

Here is a golden opportunity for us, as dealers, to say to the owner, "Here is the answer. Research on the part of the National Warm Air Heating and Air Conditioning Assn. makes this possible. We have adopted the standards developed by the national association. You can now have floor to ceiling comfort."

We must get as many forced warm air systems changed from intermittent operation to continuous air circulation as soon as possible. I am hopeful that manufacturers, jobbers, and dealers will join hands as never before. If the men in this industry, yes, the men in this room will promise to do a better job—many can be changed before this coming Christmas. Let us certainly resolve—make it a New Year's resolution—to change over more continuous circulation jobs in 1949.

In Mr. Flack's talk, he summarized 15 conditions offered by 10 of the foremost economists of the country to indicate an era of unusual prosperity is on the horizon. These 15 conditions are: 1. A 224 billion dollar national income. 2. A cost of living index of 76 and a national income index of 112, a differential of 36. 3. Broader distribution of wealth. 4. Demand for goods still unfilled. 5. Production greater. 6. Over eight percent rise in population. 7. Fifteen million new family units established in last decade. 8. Over 61,200,000 employed. 9. Banking structure

(Please turn to page 217)

Maintenance Contracts

Use Caution, Speaker Urges

Maintenance contracts, a form of servicing charges discussed in DOMESTIC ENGINEERING frequently in the past, and has proved of great interest to readers, was discussed at the recent Chicago meeting of the National Assn. of Refrigeration Contractors. The subject was assigned to Harvey O. Miller, Murphy and Miller, Inc., Chicago, who was unable to deliver the talk, and was discussed by T. J. Reedy, North Town Refrigeration Corporation, Chicago.

WHILE discussing "contract sales," better known as "maintenance contracts," I believe we should analyze the complete maintenance contract structure. With this thought in mind I wish to present the following breakdown in four separate sections:

1. Why do we have maintenance contracts?
2. What are their advantages?
3. What are their disadvantages?
1. What is needed in order to offer the service to your customer?

As to why we have maintenance contracts, I submit the following reasons in the order of their importance:

1. To tie up a customer. In other words, put him in a position where he is bound to call us when he needs service.
2. To provide work for the men in a normally slack time. In this connection I refer to maintenance contracts that contain periodic lubricating and checkup service.
3. To provide fairly positive income.

What are the advantages of maintenance contracts? What do they offer the customer? Primarily, and the most important advantage to the customer, is the set or fixed yearly maintenance cost. This is of great importance to customers who forecast and budget their business.

A Question of Risks

To the customer it is an insurance policy against higher maintenance cost. I believe the advantages to the contractor, if there are any, are closer ties to our customers, steady work for our men, and steady income for us.

As to disadvantages of maintenance contracts, I know of none as it applies to the customer.

I believe we should refer to risks instead of disadvantages when we approach the contractor's side of this question. When we sell maintenance contracts, we put ourselves into the insurance business.

I am not too sure we belong in the insurance business, and if we do, there is a question as to what percentage of our total business we should do in this type of activity. There is a certain amount of gamble connected with maintenance contracts that needs definite reserves as a cushion to fall back on in case of an epidemic of breakdowns.

When pricing a contract, we face another risk. Unless we have records covering years of experience on the particular piece of equipment up for pricing, we have to guess at the price to a certain degree, and guessing is a risk and a big disadvantage.

Last, but not least, we face unforeseeable increases in cost. We take a year's contract today based on today's material and labor costs, but tomorrow they both increase, with the result that we either lose money or fail to make our proper profit on the contract.

I believe we should put emphasis on selling maintenance contracts during lean years when the risk of increasing costs are less, and promote regular paid service during times such as we now have. The risks I refer to are greater when you are taking maintenance contracts on all types and makes of equipment than they are when you are taking contracts on one manufacturer's equipment that you may handle as a direct selling agent.

Naturally you are very familiar with this equipment, well aware of its characteristics, and you are in a position to take them into consideration when you are pricing your contracts. In other words, the risk is in direct relation with how familiar you are with the equipment.

One thing is sure. If we sell contracts under today's conditions, we certainly need the fourth section of this story, "What is needed to offer the service to your customer." Of greatest importance is a foolproof contract form drawn up along the lines of some sick and accident insurance policies, which gives you the right to cancel at any time by refunding the unearned portion of the contract price. Naturally, this contract also must protect the contractor against responsibility in the event of misuse of the equipment, remodeling by others, floods, fires, and similar accidents or abuses.

Used as Sales Tool

Some contractors are using second year maintenance contracts as a sales tool in selling new equipment. I question whether this is good business. I understand that some contractor's associations are active in trying to reduce the time covered by the manufacturer's standard warranty from its present one to five year period down to a period that is somewhat more comparable to other lines of equipment such as automobiles and radios. There is talk that some manufacturers concur in cutting down the warranty period, while others are thinking of a ten year warranty.

Surely, if we as an organization promote long term maintenance contracts, we will find ourselves in a position where we are talking out of both sides of our mouth, and I personally feel that a single maintenance contract should not provide servicing equipment at a flat rate price for any period longer than 12 months, without renewal.

I appreciate that in this discussion I have only covered the high points in connection with maintenance contracts, but to cover it more thoroughly would mean bringing up individual details, some of them applying to certain contractors and not applying to others.

Sales — At Home . . .

. . . and in Field

"GOOD MORNING—Baulos Heating, Mr. Baulos talking."

"This is Mrs. Andrews on Prospect Ave. My husband is thinking about putting in some kind of automatic heating in our home and he wanted me to call you about it. He saw your sign at your showroom last night and has heard your radio advertising and thought you could give us an estimate on heating our home."

"We certainly can, Mrs. Andrews. Can Mr. Andrews visit our showroom during the day or evening?"

"Well, that's kind of hard for him to do, Mr. Baulos, as he leaves home early in the morning and gets back late in the evening. This is his busy season."

"Maybe we can get around that, Mrs. Andrews. Suppose we call at your home in the evening when Mr. Andrews arrives. You can tell him that we'll bring two types of automatic heating systems with us and will demonstrate both to him."

"That's fine. Can you make it nine o'clock Thursday evening?"

"We'll be there, Mrs. Andrews. Thanks for calling."

This typical telephone conversation between Scott Baulos of Decatur, Ill., and a customer is almost a summary of what makes Scott Baulos' cash register ring more often

Above: New showroom of Scott Baulos at Decatur, Ill. Right: Approximately 2000 visitors were present at the grand opening ceremonies held last September. Baulos' showroom is located in a residential district on a heavy foot and vehicle traffic street.

Left: Scott Baulos and manufacturers representatives demonstrating stoker operations to some of the visitors at the September grand opening ceremonies held at Baulos' showroom, Decatur, Ill. Not all of Baulos' demonstrations are made with showroom units. Scott Baulos has for many years brought stoker and oil burner demonstrations right to the front door of prospects. He has already worn out one demonstrating truck and has recently outfitted a larger truck for continuing his policy of bringing automatic home firing equipment to the customer.

in his new showroom completed about two months ago.

Big item in Baulos' successful merchandising program is his demonstration truck which he can roll right up to the prospect's door and show how his line of stokers and oil burners works.

Scott Baulos has been rolling his demonstrator truck up to customer prospects for many years. This spectacular selling agent has won immediate acceptance in Baulos' territory, which includes not only Decatur but the whole Macon county. He has already worn out one demonstrator truck and has recently purchased and outfitted a larger truck for demonstrating the merchandise he sells.

Advertising is given top billing by Baulos. Large size ads are regularly run in the local daily paper and Mr. Baulos uses spot radio advertising five times weekly over station WSOY, Decatur. This spot radio advertising, five minutes preceding a thirty minute popular program and five minutes preceding the conclusion of this program, has a wide listening audience. Calls from this radio audience have been unusually large and Baulos has added many customers to his "sold" list from this advertising media.

In both newspaper and radio advertising, Scott Baulos tells a heating story based on the theme of comfort, economy and relief from hand operations.

Service is another important link in Baulos' merchandising program chain. This link is Baulos' weapon for solidifying good relationship with his customers. Selling a prospect is not enough, he maintains. Continued good will and dependable service are necessary factors in future sales of other appliances sold by Scott Baulos.

Mr. Baulos has consistently utilized sales promotional material offered by manufacturers and distributors. This material is supplemented by Baulos' own ideas on good sales promotion display and advertising for creating prospects for ultimate sales. He particularly has taken advantage of seasonal sales promotional material and promotional material created for specific selling campaigns.

Baulos also has set up an arrangement for demonstrating stoker and oil burners at his showroom and home. Customers are invited to inspect the stoker installation in the showroom heating plant and the oil burner installed in Baulos' home.

The Baulos showroom, 65 by 70 ft, is located in a residential district and on a main street where both foot and vehicle traffic is heavy. The location is a short distance from the downtown area of Decatur and easily accessible to the main shopping district.

In addition to the home demonstrating truck unit, Mr. Baulos has recently purchased this new pick up truck for service calls and delivery of heating equipment and complete kitchen and laundry fixtures.

Baulos merchandises complete kitchens, including garbage disposals and dish washers, complete laundry equipment, and other home appliances.

From his many experiences as a salesman, Mr. Baulos likes to tell the story of how he almost lost a sale on a commercial stoker installation. A seven man school board, by a vote of five to four, had turned down Mr. Baulos' bid for the job. On the way home, he suddenly let out a yell, turned his car around and headed back to the school board meeting. When he called the board's attention to the fact that nine votes were cast from a seven man board, the school board went into conference and—awarded the installation to Mr. Baulos.

THERE'S A

Klixon Relief Valve

FOR EVERY HOT WATER TANK APPLICATION . . . PRESSURE, TEMPERATURE OR BOTH

2 Self-closing Pressure Relief or Fusible Plug Type Temperature and Pressure Relief

Self-closing Temperature Relief

3 Self-closing Temperature and Pressure Relief

4 Self-closing Temperature and Pressure Relief with release handle.

5 Self-closing Temperature and Pressure Relief, immersion type.

Outstanding for their efficiency in operation and protection, Klixon Relief Valves prevent hot water tank explosions. They are available in a wide range of models to meet every application for temperature or pressure.

Klixon self-closing temperature relief valves protect tanks from excess temperatures. Klixon pressure relief valves guard against dangerous pressures.

Klixon Combination temperature and pressure relief valves protect tanks from both excess temperatures and pressures.

Klixon fusible plug type temperature and pressure valves relieve temperature, pressure, or both.

Remember it pays to protect hot water tanks from explosion. It pays to use Klixon Relief Valves.

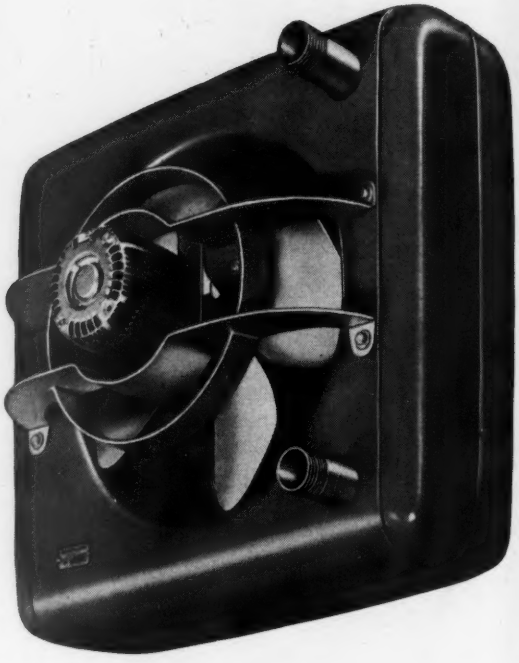
KLIXON
TRADE MARK REG. U. S. PAT. OFF.

SPENCER THERMOSTAT COMPANY
1801 Forest Street, Attleboro, Mass.

WRITE FOR BULLETIN PR 55

This bulletin gives complete information on all Klixon Relief Valves. Data includes types, specifications and mounting details. Write for a copy.

COMPLETELY NEW!



THE CARRIER 46U UNIT HEATER

- SMARTLY STREAMLINED
- QUIET AS A WHISPER
- ECONOMICAL TO RUN
- STURDY, YET LIGHT WEIGHT
- FOR STEAM OR HOT WATER
- MANY SIZES, CAPACITIES

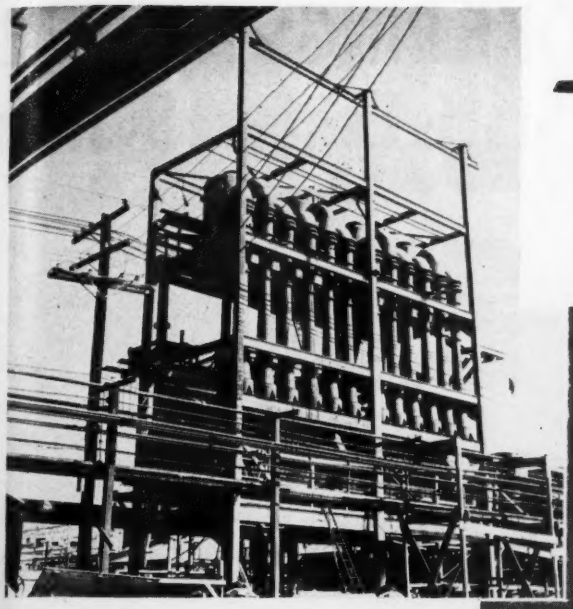
Take a second look at the first completely new unit heater in years. Introduced recently by Carrier, it's already the talk of the trade — so attractively styled it's a "natural" for beauty shops, restaurants and quality retail stores . . . so sturdy and efficient it's a good investment for factories, garages and other large commercial and industrial space.

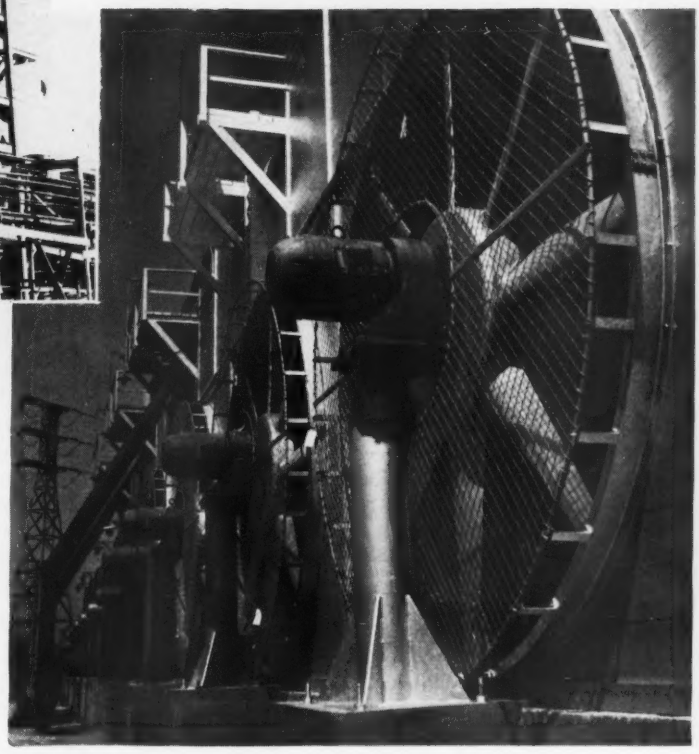
Newly engineered and modernly streamlined, this unit sets advance standards in appearance, dependability and low-cost performance. Its heating coil of revolutionary design ups efficiency, lowers operating costs. Deep-finned tubes provide maximum heat output. Single-row coil construction offers less air resistance, reduces power consumption. And it's easy to install and service — by removing only four bolts and nuts, it can be completely disassembled. Supply and return pipes are concealed in the rear. Heavy-gauge steel construction assures long life.

Along with other Carrier Unit Heaters, this new model gives you a wide choice for every installation. For gas, use the new Carrier Gas-fired unit with its "heart" of Aluminized Steel. For jobs needing high clearance, use the Carrier Four-way Directed-flo unit, with discharge from one, two, three or four sides. Each offers the *plus* of Carrier Engineering know-how for long, low-cost service. Carrier Corporation, Syracuse, New York.

Carrier AIR CONDITIONING • REFRIGERATION • INDUSTRIAL HEATING

Steam Jet Refrigeration



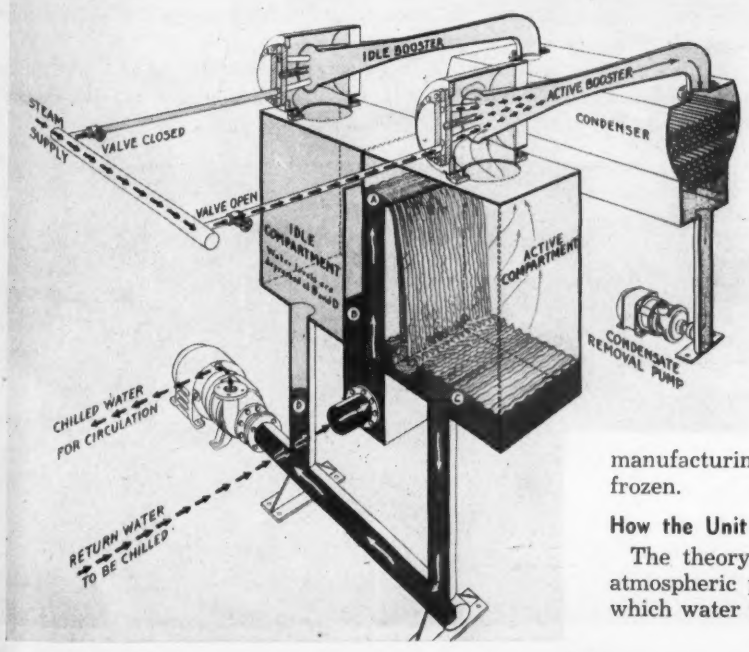


Above: The new steam jet refrigeration unit, shown here as it was nearing completion, is described as one of the largest of its kind ever built. It chills but does not freeze water.

Right: The huge fans force air through the cooling towers, which cool the water for reuse in the refrigeration cycle, and for other uses after it has become heated in the manufacturing plant.

STEAM jet refrigeration for cooling processing water at a rate equal to freezing 400 tons of ice daily was recently installed in the Baton Rouge, La., plant of the Ethyl Corporation.

Using water as its own cooling agent, the unit will deliver some 25 million gallons of refrigerated water daily for use in manufacturing operations. The water is cooled, not frozen.



Left: In this cut-away view of a typical steam-jet water-vapor refrigerator, water flows into the active evaporator compartment and a small portion of it is evaporated because of the vacuum maintained there by the action of the steam-jet booster. The heat required for evaporation is extracted from the remaining water, which is thereby cooled. The vapor is removed by the ejector and is discharged into the condenser, where it and the steam are liquified and then recirculated. The chilled water is pumped to wherever its cooling effect is required, and is returned to the evaporator to be recooled. The unit has two flash chambers which permit increasing or decreasing its refrigerating capacity in accordance with load variations. The four water levels indicated by A, B, C, and D are caused by the pressure difference between the evaporator and condenser vacuums.

How the Unit Works

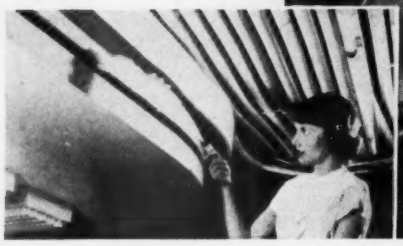
The theory of operation in brief: The lower the atmospheric pressure, the lower the temperature at which water will boil.

(Please turn to page 212)

SMOKE RINGS THE BELL and Starts Exhaust System

Above: Cigarette smoke blown at an accumulator opening by Frank Crenshaw, chief electrician for Sage-Allen, is sufficient to set into operation the electronically controlled smoke exhaust system, which pulls the smoke out of the building through slot-type duct opening. Chemical bomb smoke is seen entering the slot, right, in a test of the effectiveness of the system.

Right: Smoke travels upward to fill the entire building when system is "off."



AUTOMATIC removal of superheated air and toxic gases to reduce danger to personnel and customers in case of fire is accomplished by an electronically controlled exhaust system in a New England department store.

The system installed in the Sage-Allen store at Hartford, Conn., consists of a separate exhaust system grouped around the stairwells, controlled by an ultra-sensitive photo-electric eye smoke detector.

The exhaust system for combating smoke was installed to supplement the existing sprinkler system for fighting fires "because smoke spreads faster than fire and consequently constitutes the bigger threat to a building," according to William Haine, vice president of the store. The occasion was the installation of electric stairways, which offered a path for smoke to spread throughout the building.

When there is even a slight amount of smoke present, the electric eye in a split second, even while it is stopping the electric stairways and ringing an alarm in the boiler room, activates the exhaust system. It starts the exhaust fan, opens the collection duct damper on the smoky floor, closes all other floor dampers and opens the rooftop fresh air intake.

The 32,000 cfm exhaust fan on the roof is thus concentrated directly on the smoke area, creating a partial vacuum in the stairwell. Replacement air from the roof ventilator constitutes an invisible downdraft air wall that prevents smoke from passing from floor to floor.

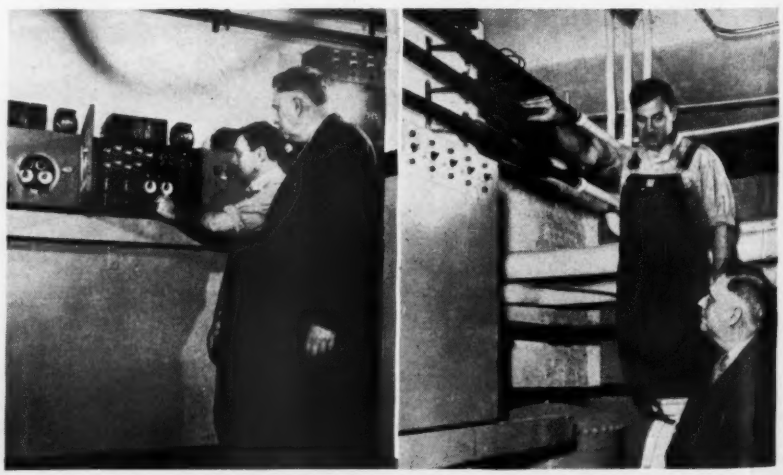
The escalators are stopped so that both up and down units may be used for escape purposes if necessary.

Electric Eye Analyzes Air

Each floor has an independent detection unit. Through six tiny inlets, called accumulators, on each floor, continuous samples of air are drawn by a small fan to the basement. There a composite sample of each floor is formed continuously and passed under the surveillance of an electric eye.

The boiler room control panel includes all sensitive relays, electronic amplifier and sequence mechanism.

(Please turn to page 215)



Stanley R. Wiggins, chief engineer, and Wliliam Haine, vice president of Sage-Allen Department Store, Hartford, Conn., (left to right in both pictures) inspect the smoke detector control board, right, and the photo-electric cell smoke concentration analyzing apparatus, far right. Each of the three tubes serves a different floor. When smoke concentration rises above a predetermined safety point, the sensitive cell alarms the exhaust system.

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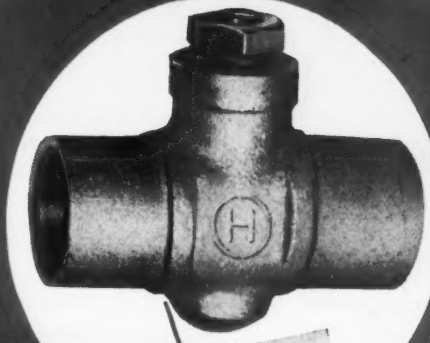
The most complete line in the United States –

. . . A new item No. 308

. . . a balancing fitting with sweat connections for copper tubing. For use in floor, ceiling, and wall radiant panel heating.



No. 201
Circulator Male Union and Sweat Connection
No. 202
Circulator Male Union and Sweat Connection
No. 204
Circulator Male Union and Female Thread
No. 205
Circulator Male Union and Female Thread
No. 301
Balancing Elbow Male Union and Female Thread
No. 302
Union Elbow Male Union with Sweat Connection
No. 303
Balancing Elbow Male Union with Sweat Connection
No. 304
Balancing Fitting Male Union with Sweat Connection
No. 305
Balancing Fitting Male Union and Female Thread
No. 308
Balancing Fitting Sweat Connections No Union
No. 100
Steam Angle
No. 105
Convector Simple Union Gate
Hammond CIRCULATOR VALVES, BALANCING ELBOWS
Hammond RADIATOR VALVES and ELBOWS

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Heating & Ventilating Exposition
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Hammond, Indiana

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Master Plumbers who accept their responsibilities to the community are always alert to the symptoms and dangers of back syphonage, and SHERWOOD 86-A Ball Cocks are recognized by thousands of civic-minded Master Plumbers as a powerful weapon against disease and discomfort in the neighborhoods they serve.

SHERWOOD's 86-A Ball Cock not only completely eliminates back syphonage but also replaces the embarrassing whines and whistles of faulty flushing devices with quiet, trouble-free operation.

The 86-A refills a 6 gallon tank in less than 1½ minutes at 28 pounds pressure. Regular height 13½" and installed with C-L (Critical Line) one inch above top of flow. Order from your wholesaler now!

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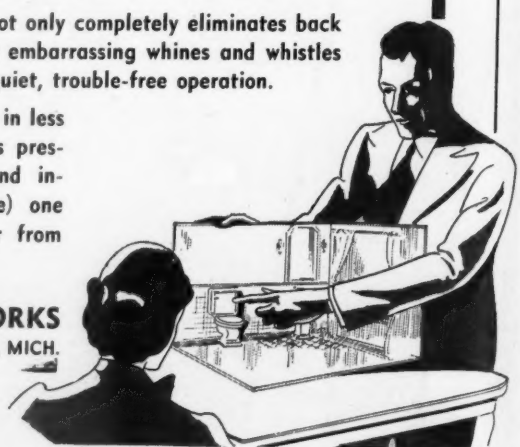

SHERWOOD Ball Cocks

As in the past, SHERWOOD Ball Cocks will build business for you. Every SHERWOOD you sell provides more profit in additional plumbing and heating sales.

IBR - Conducts Training Continues Short Courses

CONTINUED active demand for hot water and steam heating equipment is expected in 1949 and well into 1950, according to opinions of leading manufacturers of boilers, radiators, and accessories who participated in an open forum discussion on current business conditions in the industry.

An extensive field training program to stimulate the sale of hot water and steam heating systems was authorized at the recent annual meeting of The Institute of Boiler and Radiator Manufacturers at the Westchester Country Club, Rye, N. Y.

More than 100 members and associate members from the United States and Canada attended the three-day meeting at which reports were presented on research, testing and rating of boilers, short courses, consumer advertising, publicity, and other activities pertaining to the interests of manufacturers of boilers, radiators, baseboard heating units, convectors, controls, and hot water and steam heating equipment and accessories.

Will Begin Work Immediately

W. C. Murray, president, Utica Radiator Corporation, Utica, N. Y., was elected chairman of the Institute. S. K. Smith, president, The H. B. Smith Company, Westfield, Mass., was elected vice chairman and R. E. Ferry, New York, treasurer.

Work on the preparation of the material for the field training program will begin immediately. It is expected that it will take about six months to complete the manual of instructions and the two sound-slide films required for the training program. A full-time instructor will be engaged to conduct the course. The program will probably start in May, 1949. Classes will be held in various cities from coast to coast as the program develops. In order to make the teaching effective, it is proposed to limit classes to 100 students and it is expected that the program can reach from 3,000 to 4,000 students in a year.

The field training program is intended primarily for heating and piping contractors and dealers and their employees, and representatives of wholesalers. The purpose of the program is to promote the sale and installation of hot water and steam heating by teaching the proper methods of installation and also giving the basic information on the best methods of selling and merchandising hot water and steam heating systems.

Another new step taken by members of the Institute was the approval of a plan to issue uniform operating instructions for the consumer. The object of these instructions is to enable the owner of a boiler to take better care of his equipment and to operate it more efficiently. A separate set of instructions will be issued for manually and automatically-fired boilers.

Members of the Institute were advised that two additional installation guides will be available after Jan. 1, 1949. These will cover cast iron radiant baseboards and two-pipe reverse return forced circulation hot water heating systems.

These two new guides coupled with the four guides already issued will provide the contractor and dealer with information on the design and installation of practically all types of residential hot water and steam heating systems. Several hundred thousand copies of the first four guides are now in use among the trade.

Members of the Institute approved the continuation of short courses and the consumer advertising program.

It was decided to have two short courses in 1949. One will be at the University of Illinois and the other at some other school to be announced later. The three short courses so far held have been an outstanding success, R. E. Ferry, general manager, told members of the Institute.

Mr. Ferry explained the basic difference between the short courses and the new field training program. The field training program will reach more men in different sections of the country. Enrollment in short courses is necessarily limited by the facilities available. The study course for short courses is more intensive than that contemplated by the field training program.

Warren S. Harris, special research associate professor, University of Illinois, reported on the research work in steam or hot water heating which is being carried on at the University of Illinois under the terms of a cooperative agreement between the University and The Institute of Boiler and Radiator Manufacturers.

Steam and Hot Water Heating Research

Professor Harris declared that research work is being carried on in the I-B-R research home, in the laboratories of the Department of Mechanical Engineering, and in a pre-fabricated basementless house erected by the University in connection with its housing program.

Nine different phases of research work in steam and hot water heating are being pursued simultaneously in the three locations, Professor Harris told the convention. Most of the work at the I-B-R research home this past year has been concerned with determining the cost of heating domestic water indirectly and other problems related to the indirect heating of domestic water.

A report on the American Society of Heating and Ventilating Engineers research program on panel heating was made by L. N. Hunter, chairman of the research committee of the Society. Mr. Hunter said that one panel has been under test for several months and the second panel will be poured soon.

A summary of what is being done in cooperation with the Heating, Piping and Air Conditioning Contractors National Assn. in the preparation of material for a textbook on boiler erecting practices was presented by J. W. Hall.

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Guaranteed PIPE WRENCH ECONOMY

No pipe wrench housing repair or expense with RIDGID

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Make Metal Cutting Easy

METAL cutting can often be simplified by the application of certain fundamentals and "helpful hints."

In this article on free hand circle cutting, the contractor is provided with hints on simplifying the process of cutting circles on metal.

Before actually cutting the circle, Fig. 1, mark the circle so that it just touches one of the outside edges of the plate. Light and adjust the blowpipe as is done for straight-line cutting. Then, preheat a spot at the plate edge and start the cut. When a disk is cut from the center of the plate pierce a small hole in the scrap metal. Start the cut in this hole and work toward the circle drawn.

Fig. 1. Mark the circle so that it just touches the outside edge of the plate. Then, preheat a spot at the plate edge and start the cut.

Fig. 2. For small circles, let the blowpipe rest lightly on the left hand. Keep the left hand fixed but let it roll forwards and backwards.

For small circles, Fig. 2, let the blowpipe rest lightly on the left hand. Keep the left hand in a fixed position but let it roll forwards and backwards as the blowpipe moves along the line of cut. If the blowpipe is held tightly in the left hand, it will be difficult to get the proper motion.

When cutting large circles, Fig. 3, mark the circle and make one or two practice swings, along the line of cut to see how the hands will move. Start the cut in the scrap metal and work toward the circle drawn. Use the hands or elbows as pivot points. Move the left hand over on itself from right to left and move it slightly in an arc.

Continue the cut, Fig. 4, until the hands are in an uncomfortable position or there is danger of losing the cut. Then stop cutting, move the hands to a new position, and continue the cut. When the circle is large it is best to make the cut in sections in this manner.

Fig. 3. When cutting a large circle, mark the circle and make one or two practice swings along the line of cut to see how the hands will move.

Fig. 4. When the circle is large, it is best to make the cut in sections as shown in the illustration, moving the hands when necessary.

MORE *Helpful* IDEAS THAN EVER—*at the...*

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The better informed you are on newest equipment—latest advances and trends—the more expertly you can plan, sell and apply efficient, economical installations for heating, ventilating and air conditioning all types of commercial and public buildings, industrial plants, institutions and homes.

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Automatic Heat and Air Conditioning News

Mass. Oil Heat Assn.

At a recent meeting of the Massachusetts Oil Heating Assn., held at the Fox and Hounds Club, Boston, Fred Beckwith, consulting engineer and secretary, Oil Heat Institute of New England, was the main speaker. He spoke at length on the importance of getting more heat per gallon of oil by increasing the efficiency of automatic heating installations.

The appointment of new officers for the coming year was confirmed, and A. Coop, Massachusetts Heating Corporation, presided as the newly elected president.

Gus Dwelley, Automatic Heating Corporation, is vice president; Fred Heaney, Buckley and Scott, secretary-treasurer. John Walsh is chairman of legislation with John Lawton and G. Dwelley on the committee. The program committee chairman is Max Seltzer with Les Godwin and Ray Eldridge assisting.

Parker Devlin, McDonnell and Miller, is chairman of membership, with Ralph Dennis, Robert Sheppard and C. Y. Woodbury on the committee. James DeWolfe is chairman of the code committee, with Frank Scully and Clarence Warner assisting. Interassociation committee is composed of Fred Beckwith and Fred Scully.

On the board of directors are J. Henry Brody, Charles Cronin, Orodon S. Hobbs, John T. Jordan, Joseph F. Walsh, Clarence Warner, Ray Chamberlain, John Landerman, Larry Williams, Jack L. O'Sullivan and Edwin E. Pope.

BCR's Cleveland Branch

To maintain close contact with expanding research activities and to expedite the application by industry of the research being conducted by the bituminous coal industry's research organization, Bituminous Coal Research, Inc., opened a branch office at Columbus.

The Columbus office, in charge of Elmer R. Kaiser, assistant director of research, will provide Battolle Memorial Institute with closer sponsor contacts on BCR projects.

Student ASHVE Chapter

Students at the University of Texas, department of mechanical engineering, Austin, Texas, recently organized to form the fourth student chapter in the United States of the American Society of Heating and Ventilating Engineers.

Illinois ASHVE

Use of the heat pump through a building's waste water was described by Clyde W. Colby, heating research director, A. O. Smith Corporation, at the December meeting of the Illinois chapter, American Society of Heating and Ventilating Engineers, held at the Merchandise Mart, Chicago.

Because of the high temperature of the waste water, heat pump efficiencies up to 500 percent were reported. The heat pump grid was installed in a trench carrying the sewage waste.

Mr. Colby related his observations as the result of several experimental radiant panel heating installations made by A. O. Smith Corp.

In other experiments where excessive radiant heat was found uncomfortable (temperatures up to 240 deg), no deteriorating effect on cement or lime plaster was shown, Mr. Colby said. The evidence, he declared, tends to show that heat does not cause changes in plaster.

In expressing a preference for grid coils over serpentine coil installations, Mr. Colby cited less pumping head requirements as a principle advantage.

In one predominantly grid type installation, serpentine coils were installed on a whim and proved impossible to heat.

Present studies, to determine what can be expected on decreased chick mortality with radiant heated brooder houses are being made by several agencies, Mr. Colby reported.

Stoker Sales

Factory sales of mechanical stokers in October totaled 11,076 units, a decrease of 22 percent from the 14,157 units sold in September, according to the Bureau of the Census. Stokers sold in October was 31 percent more than the number sold in October, 1947 but 38 percent less than the number sold in October, 1946.

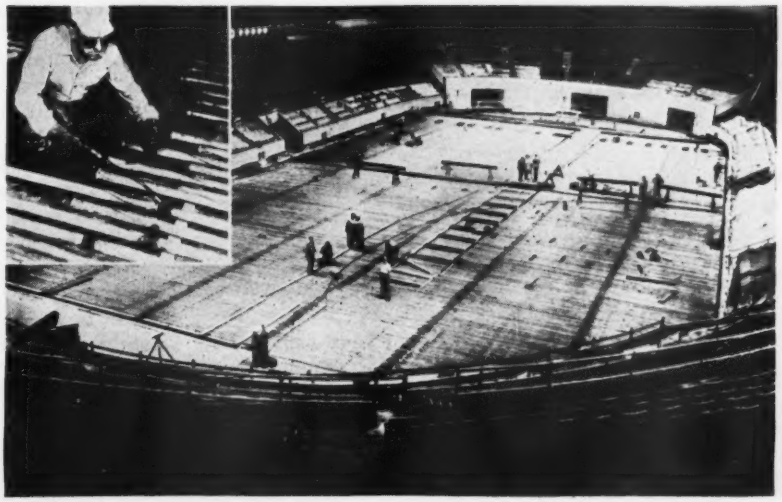
Of the 11,076 stokers sold in October, 9,203 were sold for residential use (other than apartment houses) and 799 were sold for use in small apartment houses and small commercial heating plants. These two types of stokers accounted for 90 percent of the total sold during the month.

Air Conditioning Exhibit

The First Southern Refrigeration and Air Conditioning Educational Conference and Exhibit will be held at Birmingham, Ala., Feb. 4-6, it was recently announced by the Refrigeration Equipment Manufacturers Assn. An advance poll indicates that over 50 manufacturers are planning to exhibit. All meetings and exhibits will be housed in the Birmingham City Auditorium.

This is the fourth in a series of educational conferences sponsored jointly by the Refrigeration Equipment Manufacturers Assn. and the Refrigeration Service Engineers Society. Previous meetings were held at San Francisco, Calif., Boston and Chicago.

A new concrete-embedded piping system for freezing ice over the arena floor at Madison Square Garden, New York City, utilizes over 68,500 feet of 1¼ in. pipe. During fabrication and after completion, continuous testing was carried on including a preliminary "suds" test under 100 lbs air pressure followed by hydrostatic pressure tests of 100 lbs.



Refresher Course...

This continues the series of articles taken from, and built around, the "refresher course" conducted by the American Society of Sanitary Engineering in connection with its Phoenix convention. The third installment will appear in the next issue.

Garbage Disposal Units

LAST month's columns on the refresher course dealt with waste food disposers. Directly following is a continuation of the discussion by William Reichert, begun in last issue:

The second step is the correct piping installation for the unit. That was touched upon by one of the other speakers saying this unit is generally connected with the dishwasher or double compartment sink and the waste from the food disposal unit is pumped out with water if there is a stoppage. It can back up into a dishwasher. Plumbing inspectors should instruct journeymen and prepare drawings to show the proper installation. Many plumbers, I believe do not know the proper installation and that is the reason they have trouble.

There is another thing which is quite a problem. That is that many of the codes require a sink waste be run to the catch basin off of a grease interceptor. That is the problem we have in Chicago. Many cities do not require that in a sink in a family dwelling. Your committee had several members who were fortunate enough to be able to install a good grinding unit in their own home and could observe it with and without the use of a catch basin with a grease interceptor. Where the sink waste from a food grinding unit was discharged into a catch basin, the reports received were as follows: In several installations they had little or no trouble. There were several of them where the food waste came over the top of the catch basin. On several other installations, the basins had only a little or no additional greasy sludge in the catch basins. However, most catch basins have a down-spout discharging into it and after a heavy downpour, the volume of water dumping into the basin will rile up the grease and cause a certain amount to discharge into the main sewer. The catch basin which overflowed was no doubt caused by a stoppage of the main sewer.

Catch Basin Installations

This might be interesting. In an 18 flat building, three catch basins were installed, each one receiving the discharge of six grinding units. After six months' use, there was approximately three to five inches of gray sludge on top of the water. Each of the basins has also a six inch downspout connected into it. Up to now, none of the tenants have had a sewer stoppage, nor have there been complaints of odors. Another food waste grinding unit was connected with a grease interceptor inside of a dwelling and was not a desirable installation. In several of those cases, we found out the grease interceptor worked

(Please turn to page 216)

Grease Interceptors

A NUMBER of authorities at the refresher course discussed the subject of grease interceptors—including Elmo G. Liddle, secretary of the Plumbing and Drainage Manufacturers Assn.

Most of the discussion centered around research work by the city of Detroit and the development of standard testing procedures for grease interception. Much attention was devoted to the proper control of flow, or speed of wastes, from the sink to the interceptor.

The following paper, by Joseph Hirshstein, president of Josam Mfg. Co., covers these points fully. While not delivered at the refresher course, this paper is an excellent summary. It follows:

I believe almost everyone should know that fundamentally there are five points that are of utmost importance in connection with grease interceptors, and that all plumbing codes should cover these points completely. They are:

1. Certified Average Efficiency of 90 percent or more
2. Control of Flow
3. Proper Sizing
4. Correct Installation
5. Regular Periodic Servicing.

The first point mentioned, "certified efficiency," means that all grease interceptors used should have a standard basis of test upon which they are rated. This standard basis of test, in the past, has ranged from nothing in some localities, to various standard test methods set up by some of our larger municipalities.

We might say here, that due to the variance of thought and ideas in connection with what a practical test for certification should be, many of our large cities have not agreed and, as a result, grease interceptors that are made in Indiana for use in Detroit would not be acceptable for use in Los Angeles.

Variance in Ordinances

This variance of opinion and thought definitely brings up serious manufacturing problems. Recognizing this, a few years ago, the Plumbing and Drainage Institute formed a research committee to set up a standard test procedure, which could be duplicated almost anywhere, and turn it over to an independent testing laboratory. To this laboratory all manufacturers of grease interceptors would send their product to be tested and certified as to its rating. If a manufacturer's interceptor was good enough to be certified under the standard test procedure, by the independent laboratory, he would than be given a seal of ap-

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STEEL-PORCELAIN ENAMEL
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Receptor is a one piece drawn stamping from 16 gauge steel, finished in fused-on black porcelain enamel. IT IS GUARANTEED FOR THREE YEARS AGAINST LEAKING DUE TO RUSTING!

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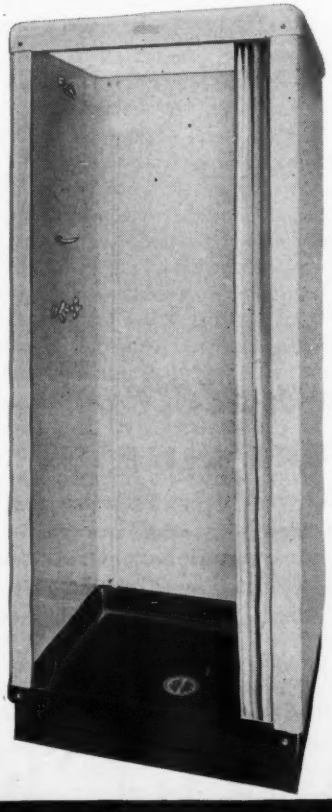

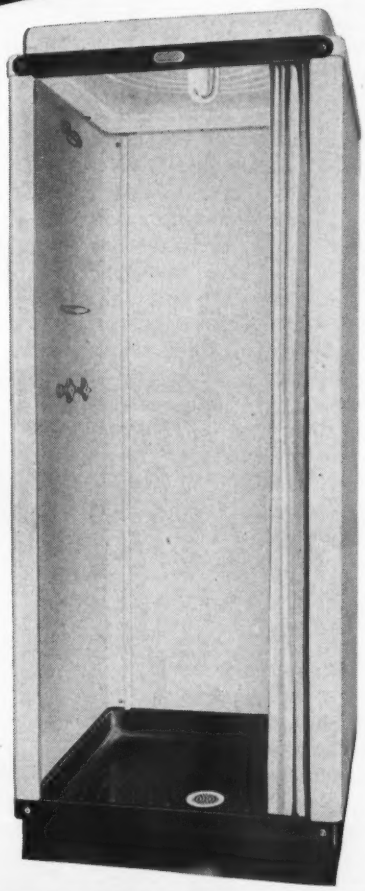

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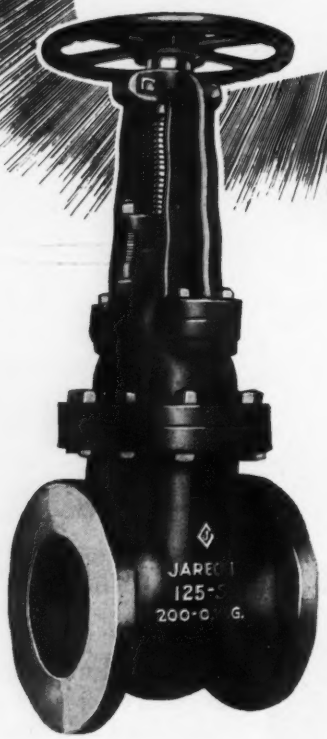

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You will find the correct valve for the job . . . for example, iron body or all iron valves in wide assortment . . . gate, globe, check . . . standard and extra heavy . . . sizes 2" to 12" inclusive . . . available through Your Jarecki distributor.

JARECKI MANUFACTURING CO.
ERIE, PENNSYLVANIA

Since 1852
JARECKI
Valves and Fittings

proval by the Plumbing and Drainage Institute.

This plan of the Plumbing and Drainage Institute, when it is completed, will give all users of grease interceptors the assurance that the interceptors which they have purchased are designed and built to meet exacting specifications so far as performance and efficiency are concerned.

It is the hope of the Plumbing and Drainage Institute that when the present research is completed, they can secure the cooperation of all code authorities, as well as the ASSE and other interested parties, to approve and adopt this standard test procedure. If this is done, users of grease interceptors will definitely be assured of purchasing high-quality products built to meet exacting standards. This will place the grease interceptor industry on the same recognized basis, so far as ratings are concerned, as boilers in the boiler industry, gas appliances in the gas industry and electrical equipment in the electrical industry. This industry has spent thousands of dollars to build up this practical test standard. We believe that such a step will go a long way toward solving the present problems of mixed-up rating and variances in the various test standards that are now in use.

Standard Testing

We might mention at this point, that some codes—which have recently been written—recognize what the Plumbing and Drainage Institute has been doing along this line, and believing that a definite standard method of test and certification will soon be set up, have specified that their basis of grease interceptor acceptance shall in general follow the recommendations of the Plumbing and Drainage Institute until such time as standards are published by the ASSE or the American Standards Assn.

Until such a standard is adopted code authorities will no doubt, continue as they have in the past and if their codes now only specify a grease interceptor in very broad terms, then they must rely on present manufacturer's ratings. If their codes contain definite specifications as to test for certification of ratings, then they must be continued until at least the Plumbing and Drainage Institute's research program on this subject is concluded and approved. At that time, we hope the program will have the approval of all those who are charged with the responsibility of protecting the public's welfare in both health and sanitation.

The second important point which we mention is the "proper control of flow." All of us certainly understand that if you have a grease interceptor that is rated to handle 20 gpm, it certainly should not be connected to waste lines, without a corrective element, in which the flow rate will exceed 20 gpm. If this is done, the grease interceptor is bound to be too small for the job and it will be impossible for the grease interceptor to maintain its rated efficiency of 90 percent or more.

We recommend the use of such a restrictive element, or flow control, on every installation in order to safeguard the grease interceptor from being used where the flow rate exceeds its rated capacity.

To illustrate why a flow control is common-sense engineering, let us take a look at the ordinary double compartment kitchen sink. The flow rate through the usual 1½ in. tailpiece ranges from 22 gpm to 37 gpm. If it were compulsory to use an interceptor with these ratings for the job, it would not be practical due to size and cost. Reducing this flow rate to approximately 15 gpm would allow a common-sense size grease interceptor to be used at a reasonable cost and still allow the fixture to drain rapidly enough for all practical purposes.

In many cases, interceptors are installed on floors below the fixtures which they are serving and when this is the case, the flow rate from one or more fixtures above is so high that if we were to size the interceptor to the flow rate, it would make almost every installation prohibitive from a size and price standpoint.

In a double compartment sink, each with a 1½ in. standard sink waste connection and with each compartment holding approximately 30 gallons of water, the flow rate at the floor level below, when both compartments are being emptied simultaneously is not less than 40 gallons per minute. I believe that everyone, from a logical point of view, can see why the flow from sinks or other apparatus being serviced by a grease interceptor—must have the flow controlled in order that the interceptor size may be within the realm of good practical common sense. This must be the thought if we are to expect the cooperation we want from the users of this type of equipment.

In cases where large sheet steel grease interceptors have been built for use in various packing plants throughout the country and where the interceptor serves many pieces of equipment and also floor drains from several floor levels, it has been necessary in order to obtain proper efficiency, to let all of the waste lines enter into what is called a "stabilizing chamber." From the stabilizing chamber the waste passes through a submerged flow control into the interceptor. Gratifying results have been secured from this procedure and hundreds of large users in the packing industry have installations using this type of flow control. From a grease salvage point of view, most all of these large installations are an investment that pays off in dollars along with eliminating continuous maintenance and repair.

Stabilizing Chambers

The third important point is proper sizing. This has long been a problem and one that in the past has had many answers. In some cases the answer was to use anything that someone called a grease interceptor. In other cases, the size was based on the number of meals served each day or on floor space and number of tables and chairs, or on number of dishes to be washed, while in other cases, it just wasn't based on anything at all.

During the past few years, we believe that the sizing of grease interceptors has been based on a method, which is most practical. This method is based on the time element desired to drain a fixture. In other words, as an illustration, let us say that you have a double compartment sink, with a drainage load of 15 gallons of water. If it is satisfactory that it requires approximately one minute to empty this double compartment sink, then an interceptor having a rated capacity of 15 gpm would be satisfactory. Using the same illustration, if a person were satisfied to wait approximately two minutes for this same sink to

empty, its flow rate would be 7½ gpm and, in this case, a smaller grease interceptor would be satisfactory for the job.

In other words, we go back to the flow control and if you make it compulsory to use the flow control in connection with a manufacturer's interceptor, then all of us can be certain that the flow rate through the interceptor will not exceed its rated capacity and the undersizing of these units will show up in the length of time it takes a certain piece of equipment to drain. If slow drainage is satisfactory then a smaller interceptor can be used, however, in no case should total fixture capacity exceed 2½ times the rated gpm capacity of interceptor. Where fast drainage is a requirement the larger size interceptor must be used. The flow control in all sizing problems is the actual insurance that the installation cannot be sized incorrectly insofar as the interceptor operation is concerned.

What we are trying to say here is that the interceptor size, to drain a fixture or fixtures, becomes a balance as to what the installation requires through the point of desire on the part of the user as to the speed that the fixtures should be emptied and only that, keeping in mind however, that in no case should total fixture capacity exceed 2½ times the rated gpm capacity of interceptor.

How to Figure

To illustrate what should be considered sensible sizing practice let us consider the following:

Cubic content of a fixture=Length x Width x Depth. For example, a sink 42 in. by 24 in. by 12 in. has 12,096 cu. in. content.

Content in cubic inches divided by 231 = capacity in gallons.

In above example, capacity is approximately 52.5 gallons.

No fixture is ever filled to capacity. Pots, pans and other items being washed displace a certain amount of water, estimated at 25 percent. Consequently 75 percent of capacity = drainage load or about 39.4 gallons.

Recommended drainage period is one minute, but conditions may exist whereby a longer drainage period would be satisfactory. In consequence; flow rates for previous example would be:

39.4 gpm for 1 minute drainage
19.5 gpm for 2 minute drainage
13.1 gpm for 3 minute drainage

You will note from the above that the fixture can be served from a choice of three grease interceptor ratings. This final choice depends upon the user's idea of the proper length of time required to drain the fixture.

The fourth important point, "correct installation," has always been a problem. In the field we have found just about everything in the books. In some cases, these units have been hooked up just the reverse of how they should be, with the waste line from the fixture going into the outlet of the interceptor and the inlet of the interceptor being connected with the sewer line. We have found, in some cases, where the flow controls have been completely ignored.

We have and are constantly trying to make the

Unless you would install interceptor of prohibitive size, regulate the flow of wastes from the sink, writer warns, in standardization plan outline

installation of grease interceptors just as fool-proof as possible. Inlets and outlets on the units are plainly marked and some manufacturers are providing a complete set of installation diagrams which cover almost 98 percent of all installation problems.

The installation booklet is usually in a waterproof envelope, wired to the trap leg of each grease interceptor. The envelope itself warns the persons installing the unit that the flow control must be installed per installation diagrams for proper operation.

One of the most important points about correct installation is the fact that all interceptors must be so located as to be readily and easily accessible for cleaning and inspection. In almost too many installations this point is overlooked, yet it is one that does more to eliminate the successful operation of the complete installation than anything else.

I had an interesting experience just a few days ago in a midwestern city where I visited a new three million dollar hotel. In their most beautiful kitchen, they had an installation of grease interceptors which clearly indicated why proper location is very essential. The interceptors installed there were set flush in the tiled floor, but in the one case, the leg from one of the scullery sinks was set right smack in the center of the grease interceptor cover. This of course eliminated any possibility of cover removal without first detaching the leg of the scullery sink. On another interceptor installed, one leg of the dishwashing unit was set on the cover, which eliminated any possibility of cover removal without first detaching the leg of the dishwasher.

Sins Against Sanitation

This brings us to the fifth and last, but equally important point of regular periodic servicing. This means that in order to eliminate the possibility of grease going into the waste lines, these units must be cleaned at regular intervals.

One thing must always be kept in mind and that is the frequent cleaning that is necessary when small interceptors are used. Naturally, the smaller the interceptor the less capacity it has for storing up grease and it follows that the smaller sizes have to be cleaned oftener.

The interval between cleaning, of course, depends upon the amount of grease going into the interceptor

(Please turn to page 220)

Peerless

QWIK-ON QUALITY PARTS *and* FITTINGS

QWIK-ON BRASS ANGLE STOP

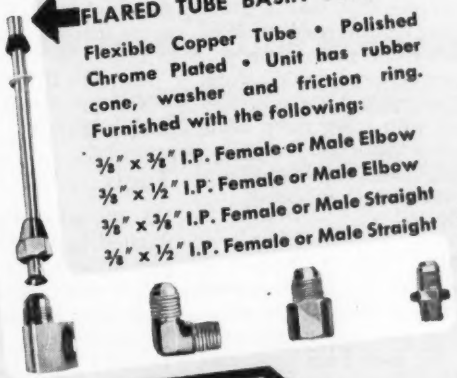
QWIK-ON BRASS ANGLE STOP for lavatory and closet. Polished Chrome Plated ⅜" or ½" I.P. Female with ⅜" or ½" compression fitting or ⅜" or ½" I.P. Fitting. Furnished with or without lavatory or closet supplies.

Additional *Peerless* PRODUCTS

★ HYDROMIST LAWN SPRINKLERS

★ HOSE NOZZLES ★

FLARED TUBE BASIN SUPPLIES



Flexible Copper Tube • Polished Chrome Plated • Unit has rubber cone, washer and friction ring. Furnished with the following:

⅜" x ⅜" I.P. Female or Male Elbow
⅜" x ½" I.P. Female or Male Elbow
⅜" x ⅜" I.P. Female or Male Straight
⅜" x ½" I.P. Female or Male Straight

QWIK-ON CONNECTORS

Tubing is THREADED fittings SCREWED on and SOLDERED—guarantees a positive connection. ⅜" Brass Tube with Polished Chrome or Natural Finish. Fittings ⅜" and ½" Straight or Elbow, Male or Female threaded I.P. Rubber cone washer and friction ring furnished. Brass Tube 5 inches long.

FLEXIBLE COPPER TUBE

Lavatory and Closet Supplies
Polished Chrome Plated

SOLDERLESS COMPRESSION TIP FITTING
(Pat. Applied For)
Soldered Tip Also Available

For LAVATORY SUPPLY
For CLOSET SUPPLY

Lengths 12"-20"-30" and 36" with Compression Sleeve Fittings ⅜" or ½" I.P. Straight Male or Female. ⅜" or ½" I.P. Male or Female elbows.

QWIK-ON AIR VALVE WITH TUBING FOR CONVECTOR RADIATOR

This coin-lock air valve is used to bleed convector radiators. A front vent hole directs any drainage into cup or glass. No more water damage to walls and floors.

Assembled with brass fittings, flexible copper tubing (⅜ x .032), chrome plated air valve and locking nut. Bottom connection ⅛" I.P. Male. Furnished in 15, 25, and 36 inch lengths.

BRASS DRAINAGE FITTINGS

1¼" TUBE x 1¼" I.P. MALE OR FEMALE
1¼" TUBE x 1½" I.P. MALE OR FEMALE
1½" TUBE x 1½" I.P. MALE OR FEMALE
★ BRASS COMPRESSION RING TAPERED
★ DIE CAST OR BRASS SLIP JOINT NUT, CHROME PLATED OR UNPLATED
★ HEAVY DESIGN BRASS CASTING

THE DEMAND FOR *Peerless* QUALITY INDICATES PERFECTION!

Peerless INDUSTRIES

FACTORY
GENERAL OFFICES

8050 N. TERRITORIAL RD.
PLYMOUTH, MICH.

Annual Review and Forecast

(Continued from page 95)

contractor-dealers for 1949. While a tremendous potential building market still exists for all types of buildings, there are still a considerable number of material shortages that will probably hamper building activity in 1949. Any further restrictions in steel usage will certainly be felt in the building field. Until government commitments and plans for steel allocation are defined, steel remains the critical item in the building supply outlook.

These brief comments are really only an opinion as regards the general outlook for 1949. On the other points they are our definite plans for 1949.

T. R. Roberts, Manager-Valve Depts.,
Ohio Brass Company,
Mansfield, Ohio

Water Systems

(Telegram) We anticipate continued good volume with slight increase over 1948. During past year we have spent many thousands of dollars installing new manufacturing equipment to lower our costs and place us in better competitive position. Our development program, started early in 1948, will bring several new and improved pumps to plumbing and heating contractors in 1949. We will continue and enlarge on our advertising and promotional programs with emphasis on effectiveness rather than quantity.

Continued high farm income and increased rate of home building and commercial construction indicate good continued volume of business for 1949 for dealers and contractors who aggressively go after it. Competition will be more intense with success and profitable operations the reward of active aggressive selling—not complacency.

G. W. Cramer, Advertising Manager,
Gould Pumps, Inc.,
Seneca Falls, N. Y.

Boilers

We do not anticipate that our 1949 production will exceed our 1948 production inasmuch as we produced just about as much as was physically possible from our facilities in 1948.

We have expanded our facilities to the extent of a new warehouse which will handle our production over the slack period inasmuch as we have done away with our former system of warehousing.

See next month's issue for further viewpoints.

About the middle of 1949 we plan to introduce a new 15 inch boiler on the market and revise our line somewhat bringing back into production a 20 inch boiler which we discontinued during the war. This will give us a complete line from the 15 right straight to the 25 boiler.

We believe that 1949 will be a very good business year, but also will be much more competitive than we have experienced in the past few years. If the price of construction goes down to any degree, we believe that opportunities in remodeling, new construction, and the rural market will increase a great deal. Also, building activity among hospitals, schools and commercial establishments will increase due to the fact that a great number of these institutions have held off until construction prices recede.

All in all, we believe, as said before, that '49 will be more of the return to a normal year with competition being a very deciding factor as to sales.

M. C. Reed, Vice President—Sales,
Dunkirk Radiator Corporation,
Dunkirk, N. Y.

Convectors

Our corporation has spent several hundred thousand dollars in tooling, for a complete new line of radiator-convectors. We have been producing these convectors during the months of November and December on a very limited and small production basis in order to eliminate any bugs in our production picture.

We can tell you quite frankly that, having invested this large sum of money, we are planning a much more aggressive promotional sales policy for 1949. We are offering new products to the plumbing and heating trade and we are optimistic over the vast potential which seems to be looming up for the year 1949.

I think that after you see our display at the 9th International Heating and Ventilating Exposition in Chicago, you will realize that we have tried to anticipate the pent-up demands in our industry.

C. W. Little, Sales Manager,
Heating Division,
Fedders-Quigan Corporation,
Buffalo, N. Y.

Pumps

We feel that we should have about a 10 percent increase in sales during 1949. We have planned on putting into effect a greater amount of advertising.

In addition to our present line of sump pumps, or cellar drainers, in about 60 days we will have for the market an industrial sump pump which should take care of conditions where a great volume of orders is concerned. I have asked our engineers for a capacity of about 5000 gph at a 25 ft head. This should give us a complete line as far as ridding basements, elevator pits, etc., of seepage water.

In accordance with your question 5, I would like to comment on the fact that up to this writing the average cellar drainer is purchased for purposes other than what it is made for. It seems, in order to save expenses, many sump pumps are doing triple duty; whereas a so-called industrial pump should have been installed. This, of course, is to save money.

Harry P. Dilkes, President,
Neptune Pump Manufacturing Co.,
Philadelphia

Tools

1. We anticipate increasing our production in 1949 by approximately 50 percent over the 1948 figure.

2. In this year, we have doubled the manufacturing facilities of our plant by addition of a new building and equipment.

3. We feel that we are at our limit in our advertising and promotion policy. We advertise in six magazines of national circulation. We have a total of six catalogs to assist the jobbers in selling our product and have sales follow-up letters to assist our factory representatives. We provide all cuts or photographs requested.

4. We are planning to add a few lines that will work in connection with the pipe threading machine which we manufacture. However, we do not plan to change our machine until 1950.

5. We feel, as do the majority of firms close to construction, that the next few years will be as good or possibly better than 1947 or 1948, especially in our home-territory of Southern California.

D. H. Beckwith,
Sales Manager,
Quijada Tool Co., Inc.,
Los Angeles.

YOU CAN THANK YOUR PLUMBER FOR MODERN SANITATION

HE GAVE IT TO YOU!

During the early part of the nineteenth century, Cholera epidemics were the dread of the world. The death toll during waves of this waterborne killer was staggering.

In London, in 1854, the discovery was made that has since led to the extinction of Cholera as a major killer. People drew their water from public wells. Investigations proved that *wherever the Cholera rate was high, nearby cesspools and drains were contaminating the well water.*

The chance of such a contamination occuring in your home today is rare . . . thanks to your plumber and modern plumbing systems. For it is due to your plumber's everlasting vigilance that only pure water is supplied to your home and that the waste water is carried quickly away—*and never the two shall mix!*

And it is due to the everlasting watchfulness of the plumbing and health departments of your community and state that you and your family live in *healthy* surroundings—free from the fear of contaminated water.

JOSAM MANUFACTURING COMPANY

World's Largest Manufacturer of Drains and Plumbing Drainage Products

Josam STANDARD OF THE WORLD PLUMBING DRAINAGE PRODUCTS

JOSAM BUILDING
CLEVELAND 13, OHIO

THIS ADVERTISEMENT is the third of a series that will appear in The Philadelphia Inquirer, New York Times, Chicago Tribune, Detroit Free Press, Cleveland Plain Dealer, Boston Post, and other leading newspapers throughout the country. This is another contribution by Josam in the interest of the plumbing industry. To find out how you can benefit by the many elements of this campaign, write Josam today! This is your chance to advance your industry, as well as yourself!

IF YOU EMPLOY 100 PEOPLE OR MORE...

YOU CAN MAKE THESE YOUR *Success Stories!*

Payroll Plan for U. S. Savings Bonds actually increases worker production, as demonstrated in large and medium-sized companies throughout the nation. Here are some examples:

PAYROLL SAVINGS MAKES EMPLOYEES MORE CONTENTED

In General Motors' My Job Contest, approximately 15,000 GM men and women gave the Payroll Savings Plan as one of the reasons they like their jobs!

PAYROLL SAVINGS CUTS ABSENTEEISM

A survey made by a smaller company in Minnesota showed that during a recent three-month period employees not on payroll savings were absent almost 2½ times more frequently than those who were on the Payroll Savings Plan. Further proof that payroll savings cuts absenteeism!

PAYROLL SAVINGS REDUCES ACCIDENTS

Records at our eleven Navy Yards show that, as participation in the Bond program increases, accident frequency and accident severity decline. When participation at the Norfolk Navy Yard climbed to over 90%, accident frequency declined over 50%, and the accident severity index dropped to 1/6 its former level!

Hundreds of companies are reporting benefits like these! Obviously, they add up to increased production.

What's more, the Payroll Savings Plan is a powerful weapon against inflation. Every Savings Bond dollar built up in the Treasury retires a dollar of the national debt that is potentially inflationary. That's good for the country's future—which means it's good for *your company's* future.

And, of course, it's good for the employee's future, because the Bonds pay $4 at maturity for every $3 invested.

If your company has the Payroll Savings Plan, make sure you and your employees are getting the most out of it! If you haven't yet installed the Plan, you're missing something! For facts or help, call your Treasury Department's State Director, Savings Bonds Division.

The Treasury Department acknowledges with appreciation the publication of this message by

DOMESTIC ENGINEERING

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and the Advertising Council.

News of Contractors . . .

Utah Assn. Convention

John H. Reeve, Salt Lake City, Utah, was elected president of the Utah Master Plumbers Assn., at the association's recent annual meeting held at the Newhouse Hotel, Salt Lake City.

Other officers are J. G. Burgess, Tremonton, vice president, and George A. Chapman, Salt Lake City, secretary.

Speakers at the convention included J. B. Hawley, vice president and director, National Assn. of Master Plumbers; W. A. Bywater, who spoke on "State Function on Plumbing Code"; Earle F. Gardemann, who gave a talk on the value of organization; Newall Pickett, who addressed the group on "Value of Sanitary Plumbing", and Gilbert W. Williams who talked on the "Immediate Future Outlook for the Plumbing and Heating Business".

Topics on general business interests were discussed by Raymond C. Wilson, William A. Bracy and Dr. William A. Murphy.

Alabama Chapter, ASSE

Dr. J. G. Vance, Birmingham, was elected president of the Alabama chapter, American Society of Sanitary Engineering, at the chapter's recent annual meeting.

Other officers are J. Roy Acton, Birmingham, vice president; E. F. Fuller, Birmingham, treasurer, and Ernest B. Buchi, Birmingham, secretary. Board of directors are Christ Bailey, Montgomery; G. G. Goubil, Mobile; C. E. Pace, Gadsden, and R. Barron Storms, Anniston.

John J. Corrigan, A. W. Cash Valve Co., gave a talk illustrated by movie strips. A film, "Quality Control, from Ore to Fnished Products," was shown by Wolverine Tube Division, Calumet and Hecla Consolidated Copper Co.

Western New York ASSE

J. J. Koehler was elected president of the Western New York chapter, American Society of Sanitary Engineering, at a recent dinner meeting held at Rochester, N. Y.

Other officers are K. P. Lenhard, vice president; W. E. Erback, treasurer, and T. J. Deverell, secretary.

Harold Driscoll, chief plumbing inspector, gave a talk on the aims of the society. Members discussed cross connections and back-siphonage.

New Massachusetts Assn.

Officers of the Massachusetts State Assn. of Master Plumbers recently visited with master plumbers of Fitchburg, Leominster and Vicinity for the purpose of organizing an association in that area.

As a result, the Master Plumbers Assn. of Fitchburg, Leominster and Vicinity was organized with John F. O'Donnel, president; Albert L. Moisan, vice president; Howard Cragin, secretary, and Ernest E. Illig, treasurer.

Board of directors are James H. Dailey, William H. Doland and Fred D. Murphy.

James E. Curry, president, and Robert Lebowitz, vice president, Massachusetts association, were among the speakers at the meeting. Mr. Curry spoke on the need for an association and Mr. Lebowitz gave a talk on advertising.

At a later meeting, Robert Pender, past president of the Massachusetts association, outlined the benefits to master plumbers in organizing an association. Mr. Lebowitz gave a talk on public relations and Mr. Curry discussed details of association activities.

Chicago Dinner-Dance

The annual dinner dance of the North and West Side Master Plumbers Pleasure Club held at the Terrace Garden, Chicago, Dec. 4, was attended by over 600 members of the plumbing industry in Chicago, including master plumbers, wholesalers, their representatives and officers of the Chicago journeymen plumbers local.

Members and guests were welcomed by Philip Kimmey, president. The dinner was followed by a floor show and dancing.

Members of the entertainment committee, who had charge of the dinner dance, were Peter H. Smith, chairman, Mr. Kimmey, William M. Readey, R. H. Curran, John G. Zajicek, Joseph Vollmer, Tom Canata, Joseph Fisher, Henry Swade, Paul Grosse, Duke Duffy and Fred Kreuger.

North Shore (Mass.) Assn.

At a recent meeting of the North Shore (Mass.) Master Plumbers Assn., held at the Hotel Hawthorne, Salem, Mass., much activity and progress was demonstrated by the reports of various committee chairmen.

Scheduled for a later meeting was a talk on estimating.

Florida Chapter, ASSE

At the annual meeting of the Florida chapter, American Society of Sanitary Engineering, held Nov. 27 at The Trade Winds, Fort Lauderdale, Fla., John Whitney was elected president; Glenn Presser, Robert Edenfield, Ray Dale, Nick Steighman and Jones Bryant, vice presidents; Arthur Cook, treasurer, and John Mitchell, executive secretary. Board of directors are Dean Johnson, Joseph Walker, Norman Asher, William Frey, Paul Dixon and O. V. Peterson.

John Whitney, retiring president, reported on his activities during the past year and the progress made on preparing a state plumbing code and a number of city plumbing codes.

Herbert Schaller, national vice president, reported on the recent convention of the society at Phoenix, Ariz., and discussed the formation of an enforcement bill for a uniform plumbing code for Florida.

A banquet was held in the evening with Philip M. Levi toastmaster. Mr. Schaller installed the newly elected officers.

Chicago Contractors

The annual meeting, dinner and entertainment of the Plumbing Contractors Assn. of Chicago, will be held in the dining room of the Builders' Club, Chicago, Jan. 11.

The business session will be held immediately following the dinner, which will include reports of officers and committees for the year 1948. This will be followed by election of officers for the ensuing year.

Carl R. Lindblad has served as president of the association during the past year.

Princeton, W. Va. Assn.

Various phases of plumbing were discussed at the Nov. 29 meeting of the Master Plumbers Assn. of Princeton (W. Va.), held at Princeton. Also discussed was the subject of credit.

Among the members attending were G. T. Johnson, War Lick; C. A. Kirk, Montcalm; G. T. Johnson, Jr., Dick Lucas, G. W. Lawrence and Bill Lawrence, all of Princeton; M. Harry, Jack Thompon, Milton Hayes, Charles B. Lowden and C. L. Lowden, all of Bluefield.

Mr. Kirk is president of the association.

Chicago (North Side) Assn.

Peter H. Smith, Chicago, who served as vice president and chairman of the entertainment committee of the North and West Side Master Plumbers Pleasure Club, was recently elected president of the club for the year 1949.

Other officers elected were: Richard H. Curran, vice president; Paul Gross, financial secretary; Geo. Groote, treasurer, and Fred Krueger, sergeant-at-arms.

Cincinnati Election

John Williams was elected president of the Cincinnati Master Plumbers Assn., at the annual election and banquet held at the Netherland Plaza, Cincinnati.

Other officers are Charles Herbst, vice president; H. J. Vonderheide, secretary; Edwin Doherty, treasurer, and Harry Happe, sergeant-at-arms.

Serving on the board of directors are Charles Weingart, Homer Biedenbach, William Tennison, and Gus Lewin, retiring president.

Wholesalers' Reports

(Continued from page 88)

On the optimistic side, an Illinois wholesaler writes: "I believe 1949 will be a greater year than 1948. The reason—we still have a shortage of homes and people are in great need of remodeling."

More pessimistically, a New Jersey wholesaler says: "Really a poorer year because of higher unit cost each sale—less over-all business."

From Montana: "The first six months will show an increase over 1948. However, the last six months are going to show about even with 1948 and maybe a slight decrease. In all respects, our business will be just about the same as 1948 when the year ends."

Conversely, from Pennsylvania: "We expect a let-down in business, possibly lasting into March, but are confident it will pick up again at that time and will continue through 1949 with good volume and profit."

From Illinois: "Insofar as the coming year is concerned, we believe that the building industry will continue to be reasonably good. There are indications that some prices are getting too high, causing the public to hesitate in purchasing such items."

"If another round of general wage increases is put into effect next spring, we greatly feel that business will show a beginning decline, when the additional costs begin to be reflected in the selling prices. If labor and management could work together toward increasing efficiency, prices could be stabilized and business continue to be good. . . ."

The only purely political comment came from Arkansas: "New deal. Left of middle. Bad for all eventually."

A new Jersey wholesaler writes: "1949 will be a good year for those business men who are alert and expect to render service. It will no longer be a year in which the seller can lie back and wait for the buyer to come to him. Selling is reverting to its own."

From Connecticut: "Indications are that, due to the high cost of materials in building generally, a great deal of the home construction anticipated will not mature unless there are some changes in these prices."

"A good percentage of the large jobs which have been anticipated will go forward. However, conditions could change this picture very shortly. I hope and look for a very good year, generally speaking, for 1949."

And from New York: "We see signs of a let-up in our business. If we do as well in 1949 as we have in 1948 we will be very much pleased, but doubt if the volume will be quite as good. We are inclined to think that prices have almost reached the peak and buyers are getting more price-conscious."

Water Systems Sales

(Continued from page 98)

that the 1949 sales of electric farm pumps and water systems would be in excess of 600,000.

At the meeting, H. R. Lafferty, vice president of Red Jacket Mfg. Co., was elected president; D. L. McDonald, president of A. Y. McDonald Mfg. Co., Davenport, vice president, and J. P. Curtin, vice president of George D. Roper Corp., Rockford, Ill., treasurer. Mr. Angster is executive secretary and director.

Members of the executive board include the newly elected officers in addition to G. R. Deming, president of The Deming Company, Salem, Ohio; Robert M. Hula, vice president of Clayton Mark and Co., Evanston, Ill.; J. C. Myers, president of The F. E. Myers & Bro. Co., Ashland, Ohio; H. T. Park, president of Flint and Walling Mfg., Co., Kendallville, Ind., and Mr. Angster.

Reports were made by the following chairmen of committees: C. D. Leiter, The F. E. Myers & Bro. Co., for the planning committee and the markets committee; M. B. MacNeille, A. Y. McDonald Mfg. Co., for the engineering and production committee; Walter Deming, The Deming Company, for exports committee, and R. B. Baird, The Duro Company, Dayton, Ohio, for the publicity committee.

New Jersey State League

The 191st regular meeting of the New Jersey State League of Master Plumbers was called to order by Urban Tietgan, president, on December 2, at Brunos Restaurant, Jersey City with the local association acting as host.

Noting that this was the last meeting of the year, and also ending the first half of his administration, Mr. Tietgan tendered a brief resume of the activities and progress of the league during the past six months, and also expressed his gratitude to the members for assuring him a successful term in office.

Wm. Klink and Al Fechtner, reporting for the convention committee, stated that all arrangements have been made for the next convention, to be held at the Ambassador Hotel, Atlantic City, June 17-19, with booth space available to manufacturers and distributors wishing to exhibit their products.

Lengthy discussions were held on uniform codes, state licenses and representation on the state board of health by a master plumber or plumbing inspector.

Obituaries

Singleton W. Riegle

Singleton W. Riegle, 50, plumbing and heating contractor, Milwaukee, died Dec. 3.

Sam Thompson

Sam Thompson, 63, plumbing and heating contractor, Seattle, Wash., died Dec. 5.

John N. Talley

John N. Talley, 70, retired president, I. N. Eaton Company, Wilmington, Del., died Dec. 3.

John Merkel, Jr.

John Merkel, Jr., 59, master plumber, Cincinnati, died Dec. 4.

Harry C. Bulkeley

Harry C. Bulkeley, president, American Sanitary Manufacturing Company, Abingdon, Ill., died Nov. 3.

Mr. Bulkeley held the position of sales manager, American Sanitary, during the years 1913-18, and became president of the company in 1918. He was president of the Tubu-

lar Plumbing Goods Assn.; mayor of Abingdon for the term 1917-19; trustee of Illinois Wesleyan University, Bloomington, Ill., and vice president of Rotary International, 1943-44.

Mr. Bulkeley was widely known in the industry.

Daniel C. Brandt

Daniel C. Brandt, 61, employed for 44 years by The F. E. Myers & Bro. Co., Ashland, Ohio, died Nov. 24.

William Schug

William Schug, 60, president, William Schug, Inc., heating contractors, Syracuse, N. Y., died Nov. 18.

Mr. Schug founded the firm in 1916 and had been associated with the plumbing and heating trade since 1904.

Andrew Morrison

Andrew Morrison, 85, retired Chicago master plumber and an honorary member of the Chicago association, died Nov. 7.

Carl B. Huck

Carl B. Huck, 66, plumbing and heating contractor, Buffalo, died Nov. 15.

T. M. Dubs

T. M. Dubs, 71, founder and president, Canton Stoker Corporation, Canton, Ohio, died recently.

Carl Lamar

Carl Lamar, 69, retired master plumber, Cincinnati, died Nov. 28. Mr. Lamar retired in 1936.

George J. Schwalbach

George J. Schwalbach, 67, plumbing and heating contractor, Akron, Ohio, died recently.

William Kaufmann

William Kaufmann, plumbing and heating contractor, Buckley, Ill., died Nov. 23.

Fred P. Thumm

Fred P. Thumm, 36, Lombard, Ill., superintendent, Charles Thumm Company, Chicago, died Nov. 17.

Charles J. Wolf

Charles J. Wolf, 72, Buffalo plumbing contractor for 50 years, died Nov. 23.

William H. Wallis

William H. Wallis, 72, retired plumbing contractor, North Plainfield, N. J., died Nov. 14.

Frank Healy

Frank Healy, plumbing inspector, Twin Falls, Idaho, died Nov. 28.

Oral A. Whitsitt

Oral A. Whitsitt, plumbing contractor, Enid, Okla., died recently.

Hiram F. Post

Hiram F. Post, 70, retired heating engineer, Larchmont, N. Y., died Nov. 24.

Convention Dates

Jan. 17-20—Illinois—Annual convention of the Illinois Master Plumbers Assn.; to be held at the Broadview Hotel, East St. Louis, Ill.

Jan. 24-27—ASHVE—Annual convention of the American Society of Heating and Ventilating Engineers to be held at the Stevens Hotel, Chicago.

Jan. 24-28—ASHVE—Ninth International Heating, Ventilating and Air Conditioning Exposition; to be held at the International Amphitheatre, Chicago. Exposition sponsored by the American Society of Heating and Ventilating Engineers.

Jan. 25—Heating—Annual convention of the National Heating Wholesalers Assn.; to be held at the Blackstone Hotel, Chicago.

Jan. 31-Feb. 1—Wholesalers—Annual meeting of the Plumbing and Heating Wholesalers of New England, Inc.; to be held at the Copley Plaza Hotel, Boston.

Jan. 31-Feb. 1-2—Wisconsin—Annual meeting of the Wisconsin Master Plumbers Assn.; to be held at the Hotel Schroeder, Milwaukee.

Feb. 20-24—Home Show—Annual convention and exposition of the National Assn. of Home Builders; to be held at the Stevens Hotel, Chicago.

Feb. 28-March 1—Heating—Annual convention of the Heating, Piping and Air Conditioning Contractors Wisconsin Assn.; to be held at the Hotel Schroeder, Milwaukee.

March 10-12—Oklahoma—Annual meeting of the Oklahoma State Assn. of Master Plumbers; to be held at the Severs Hotel, Muskogee, Okla.

March 28-29—Wholesalers—Spring meeting of the Middle Atlantic Wholesalers' Assn.; to be held at Skytop Lodge, Skytop, Pa.

March 28-29—Virginia—Annual convention of the Virginia Associated Plumbing and Heating Contractors, Inc.; to be held at the Roanoke Hotel, Roanoke, Va.

April 7-9—Texas—Annual convention of The Associated Plumbing Contractors of Texas, Inc.; to be held at the Texas Hotel, Fort Worth.

April 13-15—Petroleum—Meeting of the National Petroleum Assn.; to be held at the Hotel Cleveland, Cleveland.

April 22-25—Pennsylvania—Annual convention of the Pennsylvania State Assn. of Master Plumbers; to be held at the Penn-Sheraton Hotel, Philadelphia.

April 24-26—Iowa—Annual convention of the Iowa Master Plumbers Assn., Inc.; to be held at the Kirkwood Hotel, Des Moines.

May 2-3—Massachusetts—Annual convention of the Massachusetts State Assn. of Master Plumbers, Inc.; to be held at the Copley Plaza Hotel, Boston.

May 9-11—L-P Gas—Annual convention and exposition of the Liquified Petroleum Gas Assn.; to be held at the Palmer House, Chicago.

May 16-20—OHI—Annual meeting and exposition of the Oil-Heat Institute of America; to be held at Mechanics Hall, Boston.

May 30-June 2—NAMP—Annual convention and exposition of the National Assn. of Master Plumbers; exposition to be held at the Cleveland Public Auditorium, Cleveland. Several hotels will be designated as official convention hotels at a later date.

June 16-19—Wholesalers—Spring meeting of the Plumbing and Heating Wholesalers of New England, Inc.; to be held at Poland Spring House, Poland Spring, Me.

June 17-19—New Jersey League—Annual convention of the New Jersey State League of Master Plumbers, Inc.; to be held at the Ambassador Hotel, Atlantic City.

Sept. 16-19—Wholesalers—Fall meeting of the Plumbing and Heating Wholesalers of New England, Inc.; to be held at Mount Washington Hotel, Bretton Woods, N. H.

News of Women . . .

Philadelphia Auxiliary

Featured speaker at the recent meeting of the Auxiliary to the Master Plumbers' Assn. of Philadelphia was Herbert Packer, chief of the bureau of housing and sanitation, City of Philadelphia.

Mr. Packer spoke generally on sanitation topics. He asked for cooperation from the auxiliary with the new air pollution program set up for Philadelphia.

Approximately 40 members attended the meeting.

Brockton, Mass., Auxiliary

The auxiliary to the Brockton and Vicinity Master Plumbers Assn. (Mass.) met recently at the home of Mrs. Leonard O. Engstrom, president, Brockton.

Program plans were made for the new season and a report was made by Mrs. Engstrom on the state directors' meeting held recently in Boston.

Mrs. John Hurst, treasurer, reported on the formation of the Lawrence auxiliary.

Dayton Auxiliary

Officers for the Dayton Auxiliary to the Ohio State Assn. of Master Plumbers for the coming year are Mrs. Sam Hoke, president; Mrs. Paul Warner, vice president; Mrs. Charles Johnson, secretary, and Mrs. Charles Heilman, treasurer.

Manufacturers & Wholesalers

A. W. Cash Anniversary

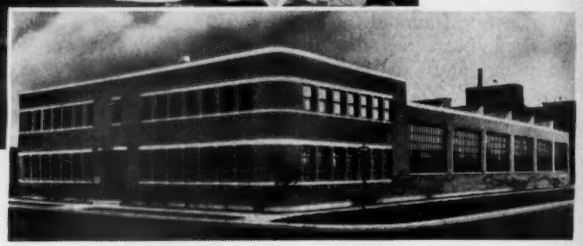
A. W. Cash Valve Manufacturing Corporation recently celebrated its 25th anniversary by holding open house at its plant in Decatur, Ill.

Active in the management of the company today are George B. Madden, president, Dean E. Madden, executive vice president, and George William Madden, secretary.

Ed Cahill is sales manager of the company and M. G. Clark is purchasing agent and in charge of production control.

The new plant, started in the spring of 1941, was completed by September, 1941. Conveyor type production lines were installed immediately after World War II and a research program, under George E. Chaniot, chief engineer, was also instituted at that time.

Left: Seated (left to right), G. W. Madden, sec.; G. B Madden, pres.; D. E. Madden, vice pres. Standing, C. E. Barnes; E. M. Cahill, sales mgr.; G. E. Chaniot; M. G. Clark, and O. F. Beyers.



Right: A. W. Cash Valve Mfg. Corp. plant at Decatur, Ill.

Red Jacket's Anniversary

Observing its 70th anniversary in the water service products business, the Red Jacket Manufacturing Company, Davenport, Ia., recently staged a "Family Day" for which an invitation was extended to families and friends of employees to tour the plant.

Operations continued as usual as groups of 15 or 20 were escorted throughout all departments of the plant. Members of the office force served as guides, souvenirs were presented each guest upon entrance and refreshments were served.

On the following day, members of civic groups, businessmen, school teachers and other interested parties inspected the plant. Visitors on both days saw a motion picture in color on the subject of soft water and an exhibit of Red Jacket products.

A. O. Smith Chgo. Meeting

A dealers' meeting, held by the Chicago branch of A. O. Smith Corp. at the Machinery Club, Chicago, Dec. 9, was attended by 60 master plumbers from Chicago and suburbs.

A promotional film illustrating in detail successful methods used in displaying and selling water heaters was part of the evening program. Exhibited were A. O. Smith products.

The meeting was in charge of A. O. Smith's Chicago representatives, Pat McDonald and Lee Bond.

Members of the Plumbing Contractors Assn. of Chicago merchandising committee, headed by George Groote, chairman, were well represented.

Webster Electric Meetings

As part of its dealer education program, Webster Electric Company, Racine, Wis., recently conducted a series of promotional meetings in the East.

Nearly 100 dealers from metropolitan Boston and eastern Massachusetts attended the meeting at the Kenmore Hotel, Boston. This was followed by similar meetings at Hartford, Conn., Newark, N. J., Philadelphia, Buffalo and Syracuse, N. Y.

Program for the meetings featured presentation of a new kit for conversion of furnaces to controlled air circulation. By means of picture slides and a demonstration of the unit, B. T. Wiechers, assistant sales manager, Webster Electric, explained the advantages in fuel saving and comfort, method of installation and selling opportunities.

Other Webster representatives in attendance were H. B. Hastings, Jr., Eastern sales representative, and L. S. Ehrich, Jr., national service manager. Meetings were conducted in cooperation with Webster Electric's authorized service stations serving the area.

The Eastern meetings were preceded earlier in the fall by meetings in Detroit, Milwaukee and St. Louis and are being continued in other sections of the country.

Left: Three employees of Red Jacket Manufacturing Co., Davenport, Ia., receiving pins for 50 years service from H. R. Lafferty, executive vice president of Red Jacket (second from left in photo).

Right: Family day visitors watching molding operation in the foundry at the plant of Red Jacket Manufacturing Co., Davenport, Iowa.

Quality is remembered

Church Seats

THE BEST SEAT IN THE HOUSE

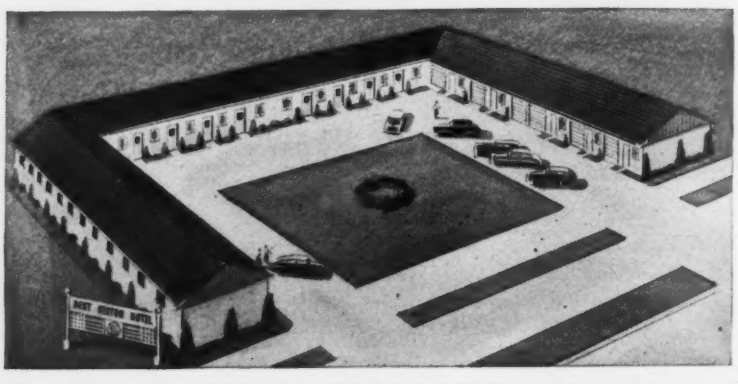
C. F. CHURCH MFG. CO., HOLYOKE, MASS.
Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

"Guests like the *Head-to-Toe Comfort* provided by BRYANT *Radiant-Panel* HEATERS"

*At A.A.A.-recommended Rest Motor Hotel, located on busy Ohio Route 8, each suite is equipped with a fully-automatic Bryant Radiant-Panel Heater with individual thermostat control.



says W. G. Patterson, Owner-Operator of Rest Motor Hotel, North Randall, Ohio*

"These smart space savers are a real attraction. Guests often remark about the cheerful comfort they afford. As for us, we've found them easy to have installed, and—best of all—mighty easy on our overhead."

● Here's the gas-fired radiant-panel heater that's at home anywhere—in living room, bedroom, bathroom, cottage, office or recreation room. It's made for year-round service or auxiliary heating, provides *two* kinds of heat: the *quick,* penetrating warmth of radiant rays and the satisfying comfort of gently circulated warm air.

There's no cutting of floors or floor coverings. The 5½-inch slenderness of this ivory-hued beauty fits flush against the wall, mounts easily with four screws applied to studding. Sizes: 15,000 and 20,000 Btu capacities for natural, mixed, manufactured and LP-Gases; 25,000 for all gases except LP. A.G.A. approved. Manual or automatic control.

Bryant Radiant-Panel Heaters provide these features: "RUFFLED-PORCELAIN" ENAMELED STEEL HEAT EXCHANGER for increased radiation, instantaneous response.

QUIET, MULTIPLE-DRILLED CAST IRON BURNER, operated by Bryant *Model H* Pilot for automatic control, constant-burning non-thermal for manual, 100% shut-off for LP-Gases.

BUILT-IN DRAFT DIVERTER, completely enclosed by steel cabinet.

Let the pup be furnace man ... and water boy, too!

bryant

AUTOMATIC HEATING

BRYANT HEATER COMPANY

Cleveland, Ohio • Tyler, Texas

Now you can
SELL ANYBODY A Servel
GAS WATER HEATER!

BALL-TYPE
MAINLINER
. . . with the exclusive copper Ball-Type tank for those who demand the finest. Made in 20, 30, and 45 gallon sizes.
HIGHLINER
. . . a medium priced heater that has no peer in the top-grade galvanized tank field. Made in 30 and 45 gallon sizes.
HEADLINER
. . . designed and priced to satisfy the needs of users in the lower price fields. Made in 20 and 30 gallon sizes.

The famous Servel *Ball-Type* "Mainliner," plus the new "Highliner" and "Headliner," gives you a Servel quality heater in every price range

Today, with 15,000,000 American homes still without automatic hot water . . . with more homes being built than ever before . . . and with many heaters rapidly becoming obsolete, you have your biggest opportunity to cash in on water heater sales.

The dealer who will make the most sales is the one who offers his prospects quality products—under one good name—at all price levels.

With Servel's new, complete line, you can now cover the market from top to bottom. You have the Servel *Ball-Type* "Mainliner"—the most modern, most efficient water heater ever turned out by American Industry. And now you also have the streamlined, fast-heating Servel "Highliner," and the sturdy, dependable Servel "Headliner" to satisfy the medium- and lower-price markets.

See your local Servel representative about stocking the full line of Servel gas water heaters. And remember, Servel is your customers' best buy . . . and your best sale.

Servel Inc.,
EVANSVILLE 20, INDIANA

Standard

AUTOMATIC HEATING UNIT

Package

. . . a new idea in heating units . . . a new sales dimension for your business. This package is a natural for impact on a large and growing market—the low-priced home. Here's a real time saver. There's no measuring, cutting, bending, threading, aligning to do on the job. Installation is simple; it has been done in a day and a quarter.

Write for catalog and additional information on this new profit-maker.

Standard Heater & Oil Equipment Co.

245 CORNELISON AVENUE, JERSEY CITY 2, NEW JERSEY

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Right: Some of the 200 master plumbers and guests who recently attended a meeting on radiant heat held at The Malone-Day Co., Warren, Ohio. Those attending came from Ohio and parts of Pennsylvania.

Left to right: G. W. Wood, Bastian-Morley; W. C. Constable, Mueller Brass; F. J. Malone, Malone-Day; C. A. Parson, Bell & Gossett; E. A. Malone, Malone-Day; C. D. Shadaker, Crane Co.; W. C. Day, Malone-Day; Valley Drout, Bastian-Morley.

Radiant Heating Meet

Over 200 master plumbers and guests from Ohio and parts of Pennsylvania attended a recent radiant heat meeting sponsored by The Malone-Day Co., Warren, Ohio.

Speakers at the meeting were W. J. Constable, field engineer, and Harold Baker, research engineer, Mueller Brass Company, Port Huron, Mich., who outlined copper tubing and soldering methods; George Wood and Valley Drout, research engineers, Bastian-Morley Co., La Porte, Ind., who talked on boilers, and C. A. Parsons, field engineer, Bell and Gossett Co., Morton Grove, Ill., who outlined adaptability of controls and proper installation.

Jobbers' Credit Assn.

The annual dinner-dance of the Jobbers' Credit Assn., Inc., was held Nov. 13 at the Hotel Commodore, New York City. Over 900 members and guests attended.

This association is headed by Milton M. Goldsmith, president; T. W. Powers, first vice president; B. F. Gilmour, second vice president; Julius Klein, treasurer, and Glenn B. Van Buren, executive secretary.

Board of directors include J. J. Levine, J. L. Plumbing and Heating Supply Corp.; Julius Klein, New York Plumbers' Specialties Co., Inc.; B. F. Gilmour, B. F. Gilmour Co., Inc.; E. E. Basch, Regent Plumbers' Supply Co., Inc.; Michael Weinsier, Saltser and Weinsier, Inc.; A. B. Miller, Sanitary Plumbing Supply Co.; Edward Schwartz, E. Schwartz Plumbing Supply Co., Inc.; A. M. Behrer, Behrer-Nason Co., Inc.; Julius Buckman, Buckman Plumbing Supply Co., Inc.; George Gruber, Central Plumbers' Supply Co., Inc.; George J. Meyer, Conran Supply Co., Inc.; T. W. Powers, Cornell and Underhill, Inc.; Milton M. Goldsmith, Glauber, Inc.; E. J. Morris, Grinnell Co., Inc., and Jacob J. Friedman, Charles F. Guyon, Inc.

New Briefs . . .

The Herman Nelson Corporation, Moline, Ill., recently announced the appointment of John D. Rosebrough as manager of the St. Louis branch office.

Mr. Rosebrough has been a sales engineer for the past ten years, with special experience in the introduction and marketing of new products.

The new St. Louis sales office, formerly at 231 Vanol Bldg., Vandeventer and Olive Sts., is now located at 2188 Railway Exchange Bldg., 611 Olive St.

John D. Rosebrough and W. Ralph Morgan

Sampsel Time Control, Inc., Spring Valley, Ill., recently announced the appointment of Heating Equipment Company, Atlanta, Ga., as sales representative in the states of Georgia, Florida, Alabama, and central and eastern Tennessee.

W. Ralph Morgan, head of Heating Equipment Company, is widely known in the heating and ventilating field. He is a member of the American Society of Heating and Ventilating Engineers.

William H. Gearhart was recently appointed representative for **The Mercoid Corporation,** Chicago. His territory includes the state of Michigan, seven counties along the northern border of Indiana, and the south side of Chicago. Mr. Gearhart has had wide experience in the automatic heating field dating back to 1932, during which time he was engaged in service work, sales, engineering and as fuel oil representative with several organizations.

W. H. Gearhart and W. S. Graham

Eljer Co., Ford City, Pa., recently announced the appointment of Walter S. Graham as sales representative and assistant to John C. Latimer at the Chicago sales office.

Mr. Graham has had considerable experience in the plumbing industry and is well known in metropolitan Chicago.

Taylor Forge and Pipe Works, Chicago, recently announced the appointment of Thomas J. Lingle as Western division manager in charge of manufacturing operations at its new Fontana, Calif., plant. He also will direct West Coast sales.

Mr. Lingle formerly was associated with oil refineries and chemical plants and, since 1946, operated his own business in Alhambra, Calif.

T. J. Lingle and Kenneth C. Bulkeley

Kenneth C. Bulkeley has succeeded his father, the late Harry C. Bulkeley, as president of **American Sanitary Manufacturing Company,** Abingdon, Ill., it was announced recently. He assumed active management of the company on Nov. 15.

Mr. Kenneth Bulkeley started at American Sanitary in 1927 as master mechanic, advancing through positions as assistant superintendent, general superintendent and then to vice-president in 1933.

The appointment of John C. Barnes to vice president for sales, Eastern division, was announced recently by **The Rittling Corporation,** Buffalo.

Mr. Barnes has had considerable experience in the heating industry. At present, he is making his headquarters in Philadelphia.

J. C. Barnes and M. E. Corbin

Kramer Trenton Co., Trenton, N. J., recently announced the appointment of M. E. Corbin as direct factory representative in the territory covering Ohio, western Pennsylvania, West Virginia and western Michigan. Headquarters will be at Cleveland.

Mr. Corbin has had extensive and varied experience in the refrigeration industry.

Norbert D. Downey was recently appointed assistant sales manager in charge of the Central states region of the heating and refrigeration division, **Fedders-Quigan Corporation,** Buffalo, according to an announcement by C. W. Little, sales manager.

Mr. Downey will cover the area west of Detroit to the mountains and from Canada to the Gulf. Immediate plans call for the opening of a Chicago branch with additional sales engineering personnel to serve the Central area.

"Norb" Downey is widely known throughout the trade as a result of his wide experience in the heating, air conditioning and refrigeration industry where he has been active in sales and refrigeration distribution.

George O. Boomer, Louisville, president of **Tube Turns, Inc.,** Louisville, was recently elected a director of the National Assn. of Manufacturers at the association's recent meeting in New York City.

Establishment of a research and testing laboratory to check on the efficiency of various types of water faucets was announced recently by **Superior Valve Mfg. Co.,** Cleveland.

In its new laboratory, the company will duplicate exact water pressure conditions present in all sections of the country. It will run extensive tests on various types of faucets particularly in relationship to their employment with Superior products.

Thomas H. Terrio, West Newton, Mass., was recently appointed distributor for the Boston metropolitan area by **General Oil Burner Corporation,** Baltimore.

Development of sales in the Boston metropolitan area will be the task assigned to Mr. Terrio.

Porcelain Metal Products Company, headed by J. U. Meyer, recently purchased controlling interests in **The Pittsburg Water Heater Corporation** and the **Pittsburg Water Heater Company,** Pittsburgh.

New president of the company is Mr. Meyer, who in May, 1946 was elected president of Porcelain Metal Products Company.

Other newly elected officers of the company and its affiliate are Vernon C. Neal, vice president; George F. Taylor, secretary and Wilma Kyle, Treasurer.

Mr. Meyer announced that no change in sales policy was anticipated in marketing Pittsburg's products.

J. U. Meyer and V. C. Neal

C. H. Bevington Co., manufacturers' representative, Chicago, recently announced the appointment of Roy O. Nelson in charge of sales.

Mr. Nelson has had considerable experience in the plumbing and heating industry. His association with C. H. Bevington Co. is effective Dec. 16.

Pem Taylor was recently appointed to the sales staff of **The Scovill Manufacturing Company,** Waterville, Conn.

His territory will cover North and South Carolina, Georgia, Florida, Alabama and eastern Tennessee, with headquarters in Atlanta, Ga.

Appointment of V. P. Bresan to the post of general sales manager has been announced by I. D. Blumenthal, president, **Radiator Specialty Company,** Charlotte, N. C.

Mr. Bresan has been actively engaged in the selling and merchandising end of the chemical and specialty field for a number of years, and has a wide background and experience with this type merchandise in various fields. He will coordinate all sales, advertising and merchandising activities of the company, which is presently celebrating its 25th anniversary.

P. E. "Nick" Carter was recently appointed regional sales manager, **Typhoon Air Conditioning Co., Inc.,** Brooklyn, N. Y.

In his present capacity with Typhoon, Mr. Carter will cover Kansas, Missouri, Illinois, Wisconsin, Iowa, Nebraska, South Dakota and Minnesota.

He will make his headquarters in Kansas City, Mo.

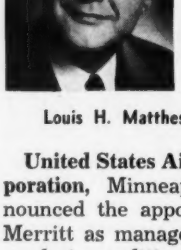
J. C. Whitlam Manufacturing Company, Wadsworth, Ohio, recently announced the appointment of R. G. Higgins, Minneapolis, as sales representative.

Mr. Higgins will cover the states of Minnesota, Wisconsin and the eastern parts of North Dakota and South Dakota.

Gerity-Michigan Corporation, Adrian, Mich., has secured exclusive sales rights for a dish washing product assembled by Dishmaster Corporation, James Gerity, Jr., president, announced recently.

Louis H. Matthes has been appointed general sales manager, **General Electric Company's** air conditioning department with headquarters at Bloomfield, N. J., according to a recent announcement by Harold F. Smiddy, general manager. As general sales manager, Mr. Matthes will be responsible for field sales activities, commercial engineering, national user sales and activities of customer sales divisions.

Mr. Matthes first joned the General Electric Company at Schenectady, N. Y., as test engineer in 1921. He joined the air conditioning department in October, 1947.



Louis H. Matthes and F. B. Merritt

United States Air Conditioning Corporation, Minneapolis, recently announced the appontment of Fred B. Merritt as manager of its new packaged air conditioning sales division.

Mr. Merritt has had considerable experience in the air conditioning industry.

The corporation also announced the acquisition of the Great National Air Conditioning Corporation with factories at Dallas and Corsicana, Texas.

Research in the Heat Pump Field

(Continued from bottom of page 111)

erally, is that the thermo-syphon refrigeration system can be converted into a practical heat pump machine. At press time, Dr. Eric Lype, research engineer for the Dept. of Applied Mechanics at Armour Research Foundation, Chicago, told DOMESTIC ENGINEERING that "Mr. Powers has an attractive and interesting idea. Mathematical analysis indicates it is theoretically sound."

The question of ultimate efficiency has not been entirely answered. Some opinions are that heating efficiencies of 200 to 300 percent may be obtained, while others hold more conservative opinions. Nearly all critics of the system have acknowledged that it can work and that it may be economic, but different opinions occur when cost estimations are considered.

Mr. Powers, the inventor, seems confident that he can ultimately achieve 300 to 400 percent heating efficiency, and ultimate coefficient of performance for refrigeration in excess of one. Up to now, he has not obtained a performance this high and believes the best calculated efficiency of his initial commercial models will likely be in the neighborhood of 75 percent.

Additional research work, both theoretical and in the construction of various types and sizes of pilot models, must be done before plans for putting the unit on the market can be made. This will require assistance from leading scientists in the refrigeration, heating, and jet-flow fields, Mr. Powers said. Details of the jet cycle operation may be found beginning at top of page 110.

How the Jet Cycle Works

(Continued from bottom of page 110)

together into a homogenous liquid stream moving at a high rate of speed. They thus have a high penatrative power, and as they move through the narrowest confine of nozzle E at its throat (E1) they are in the position of having both small cross-sectional area and high momentum. These two factors permit the small stream to react against the body of higher pressure liquid refrigerant which is being stored at high pressure in liquid diffusion nozzle F. The reaction of the small stream working both against the sides of nozzle F and against the liquid in the nozzle, causes kinetic forces of momentum to be transformed through successive stages into rising increments of static pressure energy. The static energy ultimately rises until maximum pressures in excess of 75 psi are reached. This static pressure is sufficient to feed liquid back to boiler A (or furnace A) and also through a heat transfer coil labyrinth (G).

In the labyrinth coil, an excess of heat from the liquid can be dumped or dissipated into a moving air stream. One of the principle phenomena of the Powers device is that during the process of ejection and diffusion, part of the heat energy from the power gas delivered from line 1A is converted into kinetic energy, and that this energy ultimately appears as reheat in the final fluid or liquid body in liquid diffusor nozzle F. In addition to this, all heat absorbed by refrigeration of the air which surrounded evaporative coil B, must appear as reheat in nozzle F. Friction losses, or losses from eddies and turbulence, will also reappear in nozzle F, so the sum of all heats put into the machine must be found as heat available in the liquid being delivered from nozzle F. This liquid stream will usually contain sufficient heat so that its temperature will have been raised to about 170F. Thus, coil G will have 60 or more degrees of temperature difference between its wall surface and the surrounding air. This will cause heat to flow out of the coil into the air, and the liquid will become cooled to air temperature.

Cooled liquid from coil G is ready to pass either into condensor nozzle E or evaporator B. To prevent evaporator B from flooding, a capillary tube or thermostatic refrigeration expansion valve (BI) will normally restrict liquid flow to the amount being evaporated on the suction side of the coil. The flow to nozzle E is regulated by a pressure balance valve which controls liquid inflow to that required for proper and effective condensation of the moving gas stream. These two restrictions on the liquid lines cause a part of the overflow to pass into liquid line 1A and thence into the boiler. By throttling the boiler feed liquid, as well as the condensing and evaporative liquids, an excess flow is obtained, which may be stored as pressure reserves for starting the cycle.

Estimates Retail Cost of Heat Pump

It can be seen from the above description that a complete refrigeration cycle has been obtained. The cycle is unlike any other which has ever been applied to refrigeration use, and has been patented by Mr. Powers. The heat pump effect results from a combination of hot and cold coils in conjunction with two streams of moving air. There are three ways in which such conjunction can be effected. The first and simplest method is to have two streams of moving air, one from outside the building; one from inside the building. Reverse action can be obtained by redirecting either air flow to either coil. For instance, when the building is to be heated, the outside air stream will be directed past evaporator coil B so that air heat will pass into the refrigeration system, and thence to heating coil G where it can be released to the room air stream for heating effect. To reverse the cycle for summer operation, the room air stream would be directed over evaporator coil B, and excess heat would be dumped into the outside airstream through coil G. This cycle has the advantage of being low in cost, and its inventor claims that he can build such a machine to sell retail for about $550.00.

First Panel Heated Public Roadway

(Continued from bottom of page 115)

utilizing a boiler as the source of heat, has been installed to winter-proof sidewalks, airports, private driveways and filling station areas. A private road was opened last winter at Belmont, Mass., near Boston, and the American Cyanamid Company plant at Bridgeville, Pa., has a 600-ft, two-lane driveway protected by embedded heating coils.

The natural hot water at Klamath Falls in Southern Oregon is widely used by the residents. It has been tapped to heat 400 homes, a swimming pool, two hospitals, a high school, a new office building, several apartment houses, business buildings, and a newly-constructed $3,000,000 veterans hospital. It is used for sterilizing dairy and soft-drink bottles. Ranchers outside of town use it to heat poultry sheds and to warm drinking water for stock.

Geologists believe the water is heated either by hot underground lava or by chemical action.

First Public Pool with Panel Heat

(Continued from bottom of page 112)

1475 Btu per day on a square foot of surface, normal to the sun's maximum altitude. This assumption is based on certain heat absorber tests, performed in Denver within the last year or so. As the sun is not at maximum at all times, we must strike an average which we have assumed at 10 percent of maximum or 147.5 Btu per sq ft. Thus, the total heat received from the sun will be:

147.5 x width x length.

"Total heat required will be that necessary to heat a charge of fresh water to the desired operating temperature. It is obvious that, in service, heat will be lost through side walls, etc. and by latent heat of evaporation, but on the other hand, heat will be gained by the body heat of the occupants. It is assumed that these will approximately balance out.

"Assuming an average depth of water at 6.5 ft, fresh water entering the pool at 60F, and a final temperature of 70F, 405 Btu per hr per sq ft will be required to raise the temperature 1 degree per hour, no allowance being made for losses. The anticipated heat absorption from the sun is 71 Btu, hence (405-71) equals 334 Btu which must be supplied from the panels. With ¾ in. copper tubes buried in the center of an 8-in. slab, the average heat path to the surface of the slab is 2.42 in. and, with a conductivity factor of 14, the required heat transmission of 334 Btu per sq ft can be obtained with a tube space of 9 in., circulating water temperature to coils at 180/200F, coil lengths not exceeding 330 ft with circulating water flow of not less than 1.6 gals per minute."

Engineering Specifications for Pool System

Some of the more interesting engineering specifications, as laid down by Mr. Bruen, follow:

For the heating system there is provided a suitable gas-fired boiler, with proper controls, so that under normal operating conditions the boiler water will be constantly maintained at a temperature approximating 180 F, maximum. There is also provided a suitable pump for mechanically forcing the circulation of hot water through the pool heating coils at a proper rate.

The boiler and connected heating coils and mains will operate as a closed system at reduced pressure.

The heating boiler to be a cast-iron sectional, gas-fired boiler, having an AGA rating of not less than 10,240 ft, or an approved complete equivalent.

There will be a limiting thermostatic control provided for the water in the pool, which will act to shut off the pool circulating pump when a water temperature, adjustable from 65 to 75 F, is reached by the water in the pool. For this purpose, a remote two-position bulb type thermostat, fitted with a 6 ft armored capillary tube and 120 volt microtherm switch, or an approved fully equivalent thermostat, will be provided and mounted.

Where indicated in drawings, and at all high points in the system, if not indicated, install an automatic air vent for hot water, or approved equivalent.

Valves between threaded pipe and copper tube may be either threaded or solder type, but equipped with proper copper to iron pipe adaptors; no threads to be cut on copper tube. All valves to be bronze body, at least 125 psi working pressure.

Stop cocks to be brass square head steam cocks, 125 psi.

Balancing fittings on coil return legs with solder ground joint union connections.

Pumps for mechanically circulating hot water will be as follows:

a. The pump for the pool heating system shall be 50 gpm-20 ft head or its full equivalent, powered with a 220 volt, 3 phase, 60 cycle induction motor, mounted with a suitable bracket directly to the pump casing, and disc assembly. Pump to be bronze body, bronze trimmed, and provided with a magnetic enclosed across-the-line starter giving voltage and overload protection, with 120 volt operating coil, and mounted in an NEMA enclosure No. 1. (The magnetic starter will be provided with a proper disconnect switch, and the 120 volt control circuit carried to the pool thermostat as shown on plans.)

Piping Specifications Listed

All pipe in this installation (except gas piping) shall be copper water tube. Embedded tubing shall be of soft temper. Tubing in open exposed positions shall be of hard temper.

All solder type fittings shall be of wrought copper. No cast fittings to be used with soldered joints.

All soldered joints to be made up with silver solder having not less than 44 percent nor more than 46 percent silver content.

All installed tubing shall be tested with 600 psi hydrostatic pressure for six hours after joining and before embedment. While under pressure, each soldered joint to be struck at least on two diameters a firm blow with a 1 lb hammer to ensure the solidity of the joint. (This will mean 4 blows to a coupling or ell, and 6 blows to a tee fitting).

The system must be absolutely free of leaks at the end of test period. Should leaks occur, the pressure test will be repeated after repairs are made, but only one hammer blow test will be required for each joint, unless joint had failed under previous test, in which case, the repaired joint must be subjected to and properly withstand the combined pressure and hammer test.

Embedded tubing will be maintained as close to grade as practicable, but no crown should extend more than one tube diameter from grade. Inverted crowns should be held to 2 tube diameter.

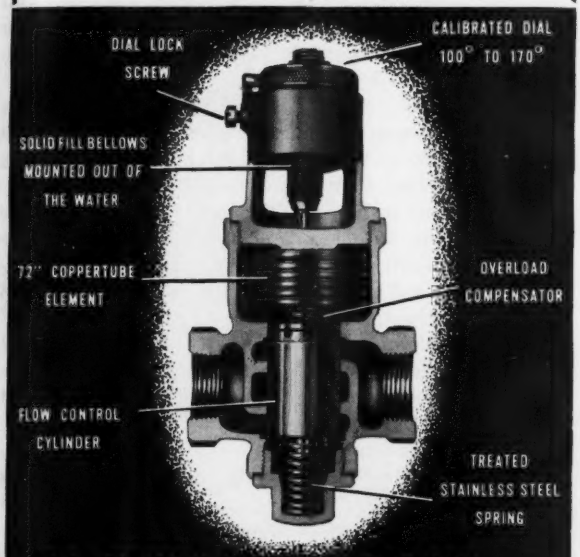
Pipe supports shall be spaced not more than 10 ft on centers, for all runs of piping not embedded in concrete or under-ground, with at least one support in each run even if it it less than 10 ft long.

After all equipment is installed and ready for operation, the entire system, including the boiler, pumps, mains, embedded coils, etc., will be pumped up to 50 psi hydrostatic, after which, with all drain valves closed, and all other valves open, the pressure must not fall below 40 psi after 24 hours, and correcting for temperature changes.

Following the pressure test the boiler water temperature will be gradually increased under manual control until a temperature of approximately 140F is reached. The circulating pumps must be running during this test, and flow may be throttled if necessary to reach this temperature. Then with water temperature held reasonably constant the entire system shall be balanced, until all returns show a reasonably close temperature. Following

(Please turn to top of page 170)

TAME THAT HOT WATER!
SAVE OPERATING COSTS *with* SYMMONS "TEMPERING-CONTROLLER"


DIAL LOCK SCREW
CALIBRATED DIAL 100° TO 170°
SOLID FILL BELLOWS MOUNTED OUT OF THE WATER
72" COPPERTUBE ELEMENT
OVERLOAD COMPENSATOR
FLOW CONTROL CYLINDER
TREATED STAINLESS STEEL SPRING

THE "TEMPERING-CONTROLLER" THAT GIVES . . .
1st — POSITIVE, ACCURATE CONTROL
2nd — LASTING PERFORMANCE

HERE ARE THE FACTS:

1. A thermostatic unit with solid fill bellows mounted out of water in a protected chamber open to atmosphere. Not subject to the deteriorating action of its own flow. Interchangeable, easily removable unit.
2. Accurately maintains constant discharge temperature at outlet, regardless of tank or tankless heater temperature variations.
3. *Automatically* compensates for all normal pressure changes.
4. Install at heater as a Master Control or anywhere along the line as a Zone Control.
5. Discharge temperature is set on a *calibrated* dial marked in units of 10 degrees with a 5 degree space between. Eliminates guesswork in setting valve, especially on temperatures above 120°. Temperature settings from 100 to 170 degrees.
6. Available in following sizes:
   ¾" delivers approximately 20 G.P.M. @ 50 P.S.I.
   1" delivers approximately 35 G.P.M. @ 50 P.S.I.
   These capacities are far greater than ordinary tempering valves.
7. Guaranteed by Symmons to be entirely as represented.

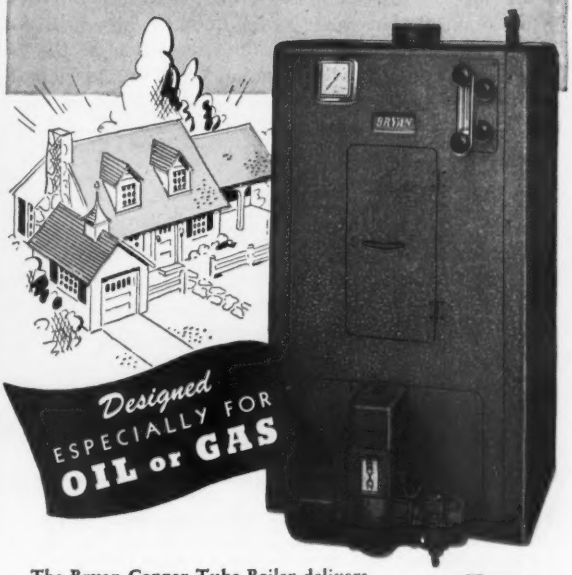
Send for bulletin and price.

Use in Homes, Beauty Shops, Restaurants, Clubs, Hotels and Institutions as a Master Control, or as a Zone Control where scalding water is needed for some purposes but is both dangerous and wasteful for others.

BY THE MAKERS OF SAFETYMIX, WORLD'S LEADING NON-SCALD SHOWER VALVE.

Symmons ENGINEERING COMPANY
791 TREMONT ST., BOSTON 18, MASS.

A BOILER *that Amazes* HOME OWNERS



The Bryan Copper Tube Boiler delivers service that is beyond the reasonable expectations of even the most particular home owner. A home owner wants and expects good, reliable service from his heating plant. The Bryan does more. Fast acting copper tubes deliver heat to radiators in record time and with astonishing fuel savings. You profit by delivering satisfaction plus.

GAS FIRED MODEL

The Bryan is compact, modern, and a cinch to install. Even the firebox lining on oil fired models is built in at the factory.

Send for Catalog

BRYAN STEAM CORPORATION
519 Chili Pike, Peru, Indiana

BRYAN *Copper Tube* **BOILERS**

First Public Pool with Panel Heat

(Continued from bottom of page 168)

balancing at this temperature, the system is to be placed under automatic control until the pool water is up to temperature, after which a final balancing will be done.

Owing to the considerable heat storing capacity of the pool, it is intended that the pool circulation will be throttled sufficiently so that under warming up conditions, boiler water temperature will not go below 130F.

During the balancing operation, the various controls will be adjusted and set to the final design temperatures. Water to the pool coils will be adjusted to 180F. Water to the building heating coils to be adjusted to 120F. Water in the domestic hot water storage tank to be adjusted to 140F. The thermostat controlling operation of the hot water re-circulating return pump to be set to stop the circulator at 110F., and start same at 100F.

Pictures Sell Kitchens

(Continued from bottom of page 102)

que. He notes that Mrs. Smith checked the card for more information on kitchen remodeling. A phone call to the Smith household reveals that Mrs. Smith and her husband can visit the showroom on Thursday evening. During the visit, features of the model kitchen are pointed out—to illustrate how various components operate.

Then, photographs of kitchen installations already made by Anytown Plumbing and Heating Company are shown to Mr. and Mrs. Smith. The dealer uses two methods here. A large easel is used to show the biggest photos (17 by 20), and a sales book, which contains 8 by 10 photos, is used to show still other installations. As brought out earlier, other methods—such as slide projections, etc.—could also be employed.

After viewing the photos, Mr. and Mrs. Smith choose the style they would like to have in their own home. At this point, the dealer determines the approximate amount of money that will be spent, and then makes an appointment to visit the Smith home.

After a careful study of available space, the dealer makes several rough kitchen design sketches that will fit both the space and amount to be spent—in addition to satisfying desires already indicated by the couple.

Later, in his own office, the dealer has from one to three sketches completed in finished form. They are colored, as shown in the illustrations on page 101, to provide realism and appeal. After the choice is made (step three), remodeling is started.

Anytown Plumbing and Heating Company has its own carpenters, tile layers and electricians, as well as journeymen plumbers. Other dealers do only the actual plumbing work and sublet contracts for carpentry, electrical work, plastering, etc.

When remodeling is completely finished, the dealer has a photo taken of the new kitchen—which then takes its place alongside pictures of other installations.

In this way, the cycle goes on and on—picture records of successful kitchens are made in order to sell more kitchens . . . . to more Jones', Smiths and Browns.

How One Dealer Sells Modern Heating

(Continued from bottom of page 119)

every night. As a result, many people return to the store to express an interest in equipment noted while driving past the night before.

Another merchandising angle in use by Vogt, while not unusual, is very effective. A boiler is completely hooked-up for actual operation, complete with controls, which gives Mr. Vogt an opportunity to point out salient features to interested prospects. The boiler is used, incidentally, to heat the showroom and living quarters above.

Another advantage of the residential location, is that parking facilities are always available for company customers. This has given the firm an excellent opportunity to build showroom traffic, according to Vogt, who pointed to a recent statement by Lewis H. Haskins, executive secretary of the Detroit Building Owner's and Managers Assn. Mr. Haskins said, following a recent survey of several large cities, "The parking business is bursting at the seams. Merchants everywhere complain that the high cost of parking hurts their business, driving trade to outlying shopping areas."

When Mr. Vogt decided to establish in a residential location, his first interest was to be near people he expected to do the most business with. However, his reputation for excellent heating system installations, along with the effect of his busy corner location and extensive promotions, now brings a steady stream of inquiries from all over Chicago.

The Vogt company utilizes several different methods of consumer advertising. Display ads in the classified section of the Chicago telephone directory and in community newspapers have brought in many inquiries. A typical ad (p. 118) announces: "Radiant Panel Heating." Underneath, an intriguing series of lines represent a typical panel installation. Copy says: "Free estimates. We make our own blueprints. Prompt service on floor plans. All work guaranteed." The company's name, address and phone number round out the ad.

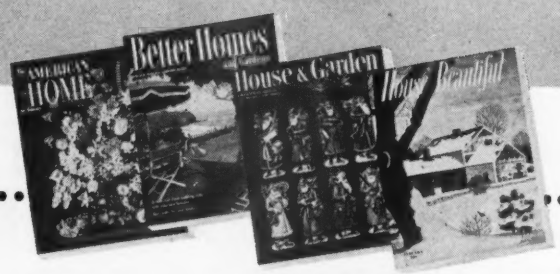
A direct mailing piece, also reproduced on page 118 (about ½ actual size), announces: "I'll bet you don't know that Otto Vogt has installed more radiant panel heating systems than any other contractor in the Chicago area." (Several hundred at press time—Ed.) The piece is sent to architects and specifying engineers mainly, though many have gone to homeowners and prospective homeowners as part of Mr. Vogt's plan to get his name firmly identified with radiant panel heating. A penny is attached to the card, which more than doubles its interest. A sign, which says: "The radiant panel heating system for this new home has been designed and installed by Otto Vogt, etc., etc.", is placed at the site of each installation made by the firm. This has resulted in many inquiries from prospective homeowners and architects, who often visit homes under construction. The above merchandising elements have all combined to bring Otto Vogt's heating company a business volume running well into six figures annually.

Otto Vogt has plans for the future too.

Now being formulated, the plans call for an intensive campaign to sell fuel conservation measures to homeowners throughout his immediate trading area. It will be patterned after recommendations in the article, "How to Sell Your Customers Fuel Conservation - at a Profit!", page 118, September issue of DOMESTC ENGINEERING.

SOLID SALES PUSH FOR *Nu-Way* OIL BURNERS

What to expect when you convert to a *Nu-Way* OIL BURNER



Constant, Comfortable Temperatures — Nu-Way Oil Burners maintain healthful, even temperatures. Just set the thermostat at the desired temperature and Nu-Way does the rest.

Fuel Economy — Nu-Way's famous patented air control and patented shielded nozzle assure correct combustion now and continued high efficiency for years to come. Ideal for small homes.

Quiet Operation — Everything about the Nu-Way has been designed with smooth, quiet operation in mind. Rotating parts are dynamically balanced. Inside air-flow surfaces are smoothed to eliminate noisy whistles.

Cleaner Heat — No soot, no ashes, no smoke. Nu-Way Oil Heat is Clean Heat.

Extra Space — Nu-Way does away with dirty, unsightly coal bins — permits space to be utilized in any number of different ways . . . makes basement space, livable space.

Trouble-Free Performance — Nu-Way Oil Burners are engineered to high standards based on 27 years of experience in building oil burners exclusively. Sold through your local heating contractor!

First of the new Series appearing in
- BETTER HOMES & GARDENS
- AMERICAN HOME
- HOUSE BEAUTIFUL
- HOUSE AND GARDEN

NU-WAY NATIONAL ADVERTISING WILL REACH INTO 6,712,579 HOMES REGULARLY IN 1949

You're in line for promotion — *big* Nu-Way promotion. In 1949, Nu-Way ads will appear regularly in America's leading home publications . . . telling simply, clearly and thoroughly why Nu-Way Oil Burners are "preferred heat" in homes everywhere.

- **ECONOMY**
- **QUIET OPERATION**
- **SPACE SAVING**
- **COMFORT**
- **CLEANLINESS**
- **DEPENDABILITY**

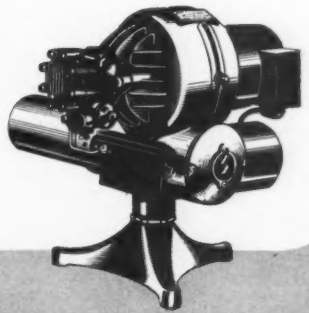
Homeowners are continually looking for — and buying — items that meet a few of the above needs. Nu-Way Oil Burners answer all six — that's the story behind the first Nu-Way ad reproduced at the left. These six big buying factors are all important selling factors. They spell Nu-Way—they *sell* Nu-Way!

Exclusive Nu-Way features, such as *patented* Positive Air Control and *patented* Nozzle Shield, will be featured prominently in this new campaign. And, as always, Nu-Way ads direct homemakers to their local heating contractors.

OTHER NU-WAY PLANS FOR '49

New mats for local newspapers, a new 8-page book on Nu-Way Oil Burners, and a big new improved catalog and instruction book.

WRITE FOR new folder containing complete details on the Nu-Way Line of Oil Burners.



THE *Nu-Way* CORPORATION
Rock Island, Illinois

"AUTOMATIC OIL HEAT EXCLUSIVELY SINCE 1921"

OIL HEATING EQUIPMENT

THE *Nu-Way* CORPORATION
ROCK ISLAND, ILLINOIS
Sold Through Jobbers and Distributors
Also Special Applications for Furnace and Boiler Manufacturers

"AUTOMATIC OIL HEAT EXCLUSIVELY SINCE 1921"

while attending the **INTERNATIONAL HEATING AND VENTILATING EXPOSITION**

Chicago, January 24-28, International Amphitheatre

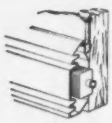
LOOK FOR THIS SYMBOL . . .
OF COMFORT AND ECONOMY

DUNHAM

HEATING MEANS *BETTER* HEATING

LOOK FOR THE EXHIBITS IN
BOOTHS 308, 310, 312, 314

CHECK LIST OF PRODUCTS TO SEE AND DISCUSS WHILE TALKING TO DUNHAM ENGINEERS

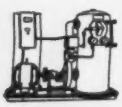


☐ **BASEBOARD RADIATION** installed in an attractive model living room to demonstrate this popular new method of making heating an integral part of home planning and room design . . . and you'll also want to get all the facts on.

☐ **CONVECTORS** that have been smartly styled in wall, floor or recessed types. Here's an opportunity to see solutions for heating rooms where decor and comfort must go hand in hand. Here you will see, first hand, in a model living room various applications of Dunham Cabinet Convectors for use on steam, vapor or hot water systems.

☐ **CONTROLS** used in correlating heat supply to comfort-requirements will be graphically demonstrated to you by a large schematic diagram. This will give you a quick picture of Dunham Control Equipment used in Vari-Vac Differential Heating installations . . . and you'll see the actual equipment on exhibit that is indicated on the diagram.

☐ **UNIT HEATERS** of the propeller fan type, horizontal and vertical air discharge; as well as blower types will be shown . . . and you'll also see Dunham Cabinet Floor type unit heaters. Types to meet all your unit heater requirements and an opportunity to compare their various advantages. (You'll be impressed by their very *quiet* operation!)



☐ **PUMPS** . . . Talk about simplicity and high efficiency in pumps with low maintenance costs and long years of satisfactory service! . . . That's just what you'll want to talk about when you see Dunham's Single and Duplex Vacuum Pumps; Single and Duplex Condensation Pumps, and Centrifugal Pumps.

☐ **TRAPS** . . . You'll find yourself "browsing" among Dunham's latest model High and Low Pressure Thermostatic Radiator, Drip and Float and Thermostatic Traps—fully assembled *and* "broken down" so you can examine their component parts. Bucket and Return Traps, too. All in a wide range of capacities.

☐ **VALVES** . . . in various models for steam—Packless, Spring Packed and adjustable orifice Radiator Valves with parts shown, in various sizes and patterns . . . and hot water valves, too.

☐ **VARI-VAC *(Job-Scaled)* DIFFERENTIAL HEATING** which uses the same method of piping as a Vacuum Return Line System *plus* exclusive Dunham features, will be on exhibit. See how it is possible to utilize the comfort and fuel saving values of subatmospheric steam for various size buildings—from the smallest factory to the largest auditorium, office building or institution. A less expensive system is also shown . . . worthwhile for saving fuel in warmer climates.

Copyright 1949

MEET MEN YOU KNOW . . .

From C. A. Dunham Company's Production and Service Divisions in Marshalltown, Iowa and Michigan City, Indiana—and Dunham Sales Engineers who will be in attendance from coast to coast as well as executives from Sales and Publicity Divisions in the United States and Canada.

Dunham Products have to pass the toughest kind of test—they must operate at peak efficiency, at minimum cost with lowest maintenance in thousands of installations in projects such as Stuyvesant Town, Peter Cooper Village, and Fresh Meadows, New York (housing respectively 24,000, 8,700 and 10,000 people). Dunham Products—whether Vacuum Pumps or Valves, Convectors or Steam Traps—are made of the finest quality materials and workmanship—are easy to install, free from maintenance, and long lived.

C. A. DUNHAM COMPANY
400 West Madison Street, Chicago 6, Illinois
Plants at: Michigan City, Indiana; Marshalltown, Iowa
Toronto, Canada; London, England

Send for Literature If You Are Unable to Attend the Convention

Check the Dunham Products about which you wish detailed information. Please write your name and position below and attach this coupon to your business or professional letterhead.

C. A. DUNHAM CO., 400 W. Madison St., Chicago 6, Ill.

☐ BASEBOARD RADIATION ☐ CONVECTORS
☐ VARI-VAC CONTROLS ☐ UNIT HEATERS
☐ PUMPS ☐ TRAPS ☐ VALVES

Name.....
Position.....
Address.....

Flexible Air Valve

Product: Flexible connection for air valve on convector or baseboard radiators.

Features: Valve is mounted flush on convector or baseboard radiation covers, with flexible copper tubing leading to radiating surface. Exposed parts are nickel plated. Valve has coin type slot for opening or closing. Available with 6, 15, 25 and 36 in. tubing lengths.

Manufacturer: G. & H. Manufacturing Co., 3047 Amber St., Philadelphia 34.

• • •

Heavy Duty Pump

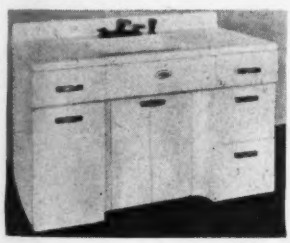
Product: Large capacity water system for farms, estates, dairies, hotels, resorts and institutions.

Features: Available in 1½ to 5 hp units, with shallow well capacities up to 3500 gph, and deep well capacities up to 4100 gph. Units can be provided for well depths down to 260 ft. Manufacturer states that pump has compact construction and is self-priming. Simple pipe connections and easy access to parts are claimed.

Manufacturer: Goulds Pumps Inc., Seneca Falls, N. Y.

• • •

Porcelain Sink and Cabinet



Product: Double drain kitchen sink and cabinet.

Features: Sink has 54 in. double drainboard of white acid-resisting porcelain enamel. Steel undersink cabinet is finished in white baked enamel. Drawers and doors are insulated and are fitted with stainless steel handles. Mixing faucet and vegetable spray hose are included. The unit is made to conform to styling of manufacturer's other kitchen sinks and cabinets.

Manufacturer: Tracy Manufacturing Company, Pittsburgh 12.

• • •

Oxygen Line Sealer

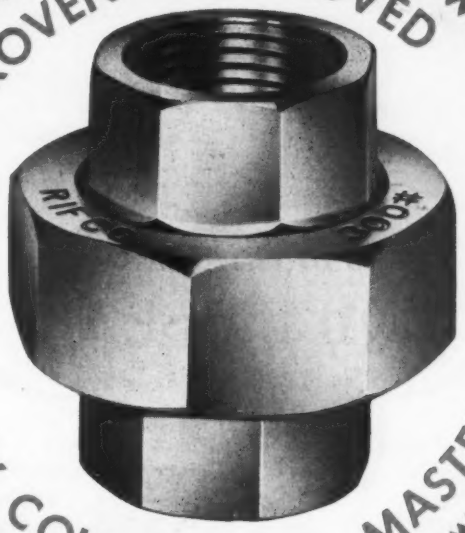
Product: Sealing compound for use with oxygen equipment.

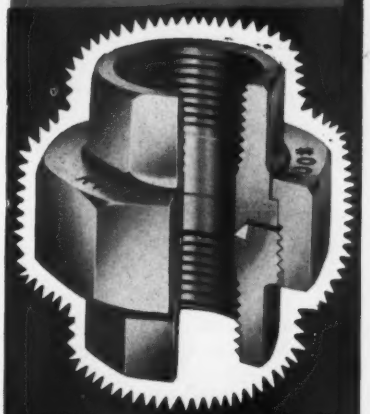
Features: Product is designed for sealing oxygen cylinder valves and line connections for pressures up to 2000 lb, manufacturer states.

Manufacturer: Key Company, Box 494, East St. Louis, Ill.

MALLEABLE IRON UNIONS

PROVEN & APPROVED BY COUNTLESS MASTER PLUMBERS





"RHODE ISLAND"

Malleable Iron Union

"RHODE ISLAND"

MALLEABLE IRON UNION DURABILITY

Long years of plumbing history mark the use and long lasting service of Malleable Iron Unions . . . reputed for their non-corrosive advantages. Many a long standing malleable iron union job can be traced to RHODE ISLAND . . . for RHODE ISLAND has supplied the Master Plumber for years. Specify RHODE ISLAND and you choose long lasting malleable. Contact the RHODE ISLAND Representative nearest you.

RHODE ISLAND FITTINGS CO.

C. F. ADAMS COMPANY
420 So. Lake St.
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GERALD J. CONCANNON
420 Market Street
San Francisco, Calif.

E. C. CROW
Box 243
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L. T. DELAVIGNE
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JACK GOLDBERG CO.
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MICHEL SALES CO.
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F. T. PAFF
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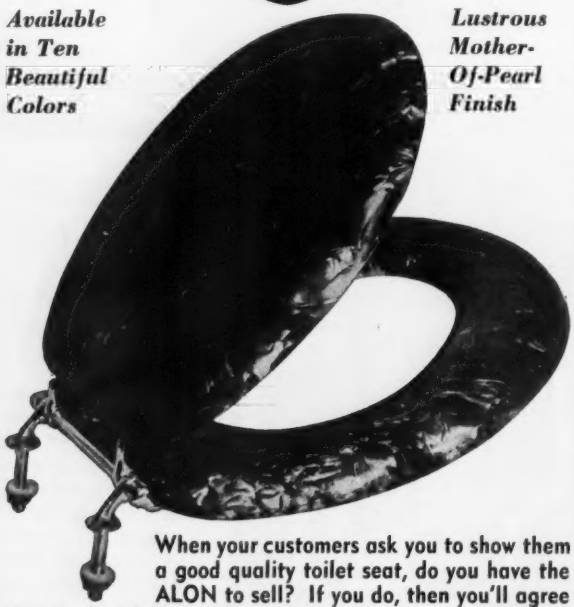
St. Louis, Mo.

M. W. WUESTHOFF
4917 Clinton St.
Los Angeles, Calif.

Feature the
ALON
Permanite Finish
TOILET SEATS

Available in Ten Beautiful Colors

Lustrous Mother-Of-Pearl Finish



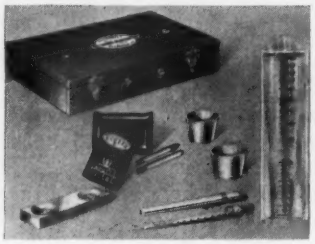
When your customers ask you to show them a good quality toilet seat, do you have the ALON to sell? If you do, then you'll agree that in the ALON you have a seat that sells on sight . . . a profitable, business-building item. For with the ALON and its 10 beautiful choices of colors, you will penetrate more sales possibilities in bathroom fixtures and plumbing parts. Buy ALON by all means for Sales Appeal!

★ Fashioned from the Best 5/4 Kiln-dried Birch or Maple.
★ Finest Wood Workmanship by Experienced Craftsmen.
★ Seats Available in a Variety of Colors . . . white, black, ivory, yellow, green, blue, orchid, rose, peach and burgundy.
★ These Colors Made to Harmonize with Bathroom Fixtures.
★ Features a Strong, Good-Looking, Chrome-on-Brass Hinge.
★ Finished in Beautiful, Lustrous Mother-of-Pearl "Pyralin."
★ Available for Immediate Shipment.

ALON MANUFACTURING CO.
1123-31 Hamilton Street
Philadelphia 23, Pa.

MAKERS OF FINE TOILET SEATS

Oil Burner Adjusting Kit



Product: Adjusting kit for pot-type oil burners.

Features: Adjusting kit, for oil burning space heaters, water heaters, cooking ranges, and warm air furnaces with pot-type burners, was developed to simplify installation and service work. Testing tools in the kit include a draft gage, which is to be used to check for adequate up-draft in the flue at all times, and for use in adjusting the draft regulator as required. A cross test bubble level is designed for use in limited quarters and for clear visibility from practically any angle. This level is required for leveling the burner pot, oil flow control, and draft regulator. An oil flow gage is included for measuring the amount of oil flow to burner pot to determine rate of the oil flow. The well of this clear plastic graduate is wedge-shaped, and the scale is on a flat surface. It is readable accurately in ¼ cc in the lower range, and measures up to 100 cc. Two oil collecting beakers for catching the oil during oil flow test are included. These aluminum cups are designed to slide under tee of burner feed or under oil control valve.

A 200 deg mercury thermometer is used for checking water temperature, temperature of the oil, or room temperature.

Literature offered: Bulletin 757.

Manufacturer: Bacharach Industrial Instrument Company, 7000 Bennett St., Pittsburgh 8.

SURE-FIRE FAVORITE for 60 years

●The speed of this C&L Coil Fire Pot in melting solder and babbitt in a metal pot has never been surpassed!

Sold through leading jobbers everywhere
CLAYTON & LAMBERT MFG. CO.
1719 DIXIE HIGHWAY • LOUISVILLE 10, KENTUCKY

For Extra Profits Sell the JUST-Line CABINETEER Sinks

MR. PLUMBER: New building and modernization projects have reached an all time high. Right in your community many modern kitchens are being planned and installed. CASH IN on this modern kitchen trend by selling and installing Precision Built JUST-Line CABINETEER Sinks. Built of No. 18 U. S. standard gauge solid Stainless Steel. Reinforcing U-shaped steel channels extending the full length of drainboards, prevent sagging, bulging and warping. Die drawn raised edges and electric welding throughout eliminate all seams, joints and overlapping flanges and assure the highest degree of sanitation. SIX STANDARD SIZES in both single and double bowl units will meet 90 percent of all requirements.

Write today for illustrated Literature D-1 and send us your specifications. Our Engineers will gladly cooperate with you in submitting blue prints and estimates.

TWO EXCLUSIVE FEATURES

Built-in Anti-Splash Rims in bowls prevent water from splashing on floors.

Smooth, Double-Pitch Drainboards without grooves assure positive drainage and reduce to a minimum the breakage of fine glassware.

We Also Make a Complete Line of Custom Built Sinks to Meet Special Requirements

A CABINETEER Sink in your display room will bring new customers into Your Shop and Increase Your Sales and Profits.

JUST *Manufacturing Co.*

4610-20 W. 21st Street, Chicago 50, Illinois

A SHOWER OF PROFITS

SPECIFICATIONS

Sizes: 32" x 32" x 76" and 30" x 30" x 76" 18 gauge walls. C. P. Arm, Head, and Valve. Available in white or natural aluminum finish.

SUPERIOR

Superlume showers

FOR EVERY INSTALLATION

In addition to our standard Cast - Stone Receptor, we present a new

Aluminum Receptor

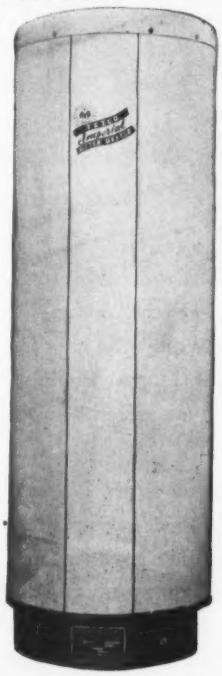
- 12 gauge
- Non slip
- Lower freight rates

Immediate delivery

Stocked by leading wholesalers. Write today for literature.

SHOWER CO.

47-05 Fifth St.
Long Island City 1, N. Y.



It meets the demand of Mr. and Mrs. America, Master Plumbers, Wholesalers and Builders, and Underwriters Laboratories.

TETCO *Imperial* **WATER HEATER**

...the Name to Know the Quality to Buy!

There is wisdom in these words because it's true. The TETCO Imperial is the hot water heater that comes through with every desirable requirement . . . an ample supply of hot water any time of day, quickly and economically.

It is streamlined . . . good looking and easy to clean. That's what sells the TETCO Imperial Hot Water Heater. Its got what the buyer wants. It's the news that gets around. TETCO is tops!

Investigate TETCO Imperial today!

Write TETCO METAL PRODUCTS for Details Today!

TETCO METAL PRODUCTS

13901 South Indiana Avenue CHICAGO 27, ILLINOIS

GENERAL TANKLESS WATER HEATERS

WHEREVER HAND-FIRED BOILERS are being converted to automatic firing, you have the "makings" of easy water heater sales. There's a lot of this conversion today . . . and a lot of General Tankless Heater installations too. Why not climb aboard the "gravy" train?

General Tankless Water Heaters are quality-made from end to end. They're space-savers, time-savers, work-savers. Easy to handle. Easy to install. What's more, they offer many customer-advantages . . . rustfree water, because it flows through seamless copper tubing; plentiful, instantaneous, economical supply of hot water; compact, permanent source—no range boiler to clutter up cellar. Seven sizes available . . . up to 35 gallons of piping-hot water per minute.

Here's the way to get your share of today's active water heater business . . . *easily*. Take the first step now. Write for Catalog 18. General Fittings Co., 118 Georgia Ave., Providence 5, R. I.

GENERAL

Visit our Booth 347
at the Heating & Ventilating Show.

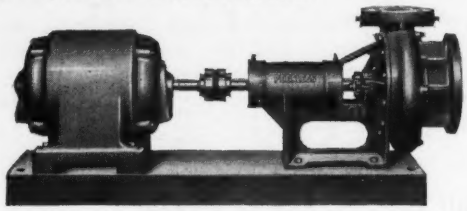
TANKLESS AND INDIRECT WATER HEATERS
AND HEATING SPECIALTIES

THE PEERLESS

Fluidyne

THE ALL-AROUND ECONOMICAL
GENERAL UTILITY CENTRIFUGAL PUMP

Type PB direct-connected to standard motor



HEADS: *Up to 270 feet*
DRIVES: *Fractional to 20 hp*
CAPACITIES: *Up to 1000 GPM*

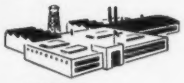
Durability – Economy – Plus Wide Utility for a Multitude of Services

The versatile Peerless Fluidyne is pumping simplicity at its best. Peerless FLUIDYNE Type PE (Electric drive unit) or the Type PB (direct connected, V-belt or flat belt drive unit) are designed for vertical, horizontal or intermediate angle installations, with consistent and dependable high efficiency operation. *Completely described in Bulletin B-165.*

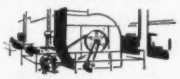
FLUIDYNE FRACTIONAL HP PUMPS
¼ to 1 HP
CAPACITIES: *10 to 50 GPM.*
HEADS: *20 to 95 ft.*

Possessing all characteristics of the Types PE and PB pumps described above, these fractional Fluidyne Peerless Pumps may be coupled to motor for incorporation into any system requiring forced liquid circulation. All Fluidyne pumps are of end suction, single stage design with vertical split casing joint, and embody a host of features for ease of accessibility and maintenance. *Completely described in Bulletins B-150 and B-151.*

Type PE Integral HP Electric Unit



FACTORIES
Peerless Fluidyne Types PE & PB are ideal for permanent or temporary installations in plants or factories. Small in size, easily moved, sturdy and dependable.



SYSTEM SUBASSEMBLIES
Fluidyne flexibility is readily adaptable as an integral part of equipment and system sub-assemblies in processing, refrigeration, air conditioning equipment, etc.

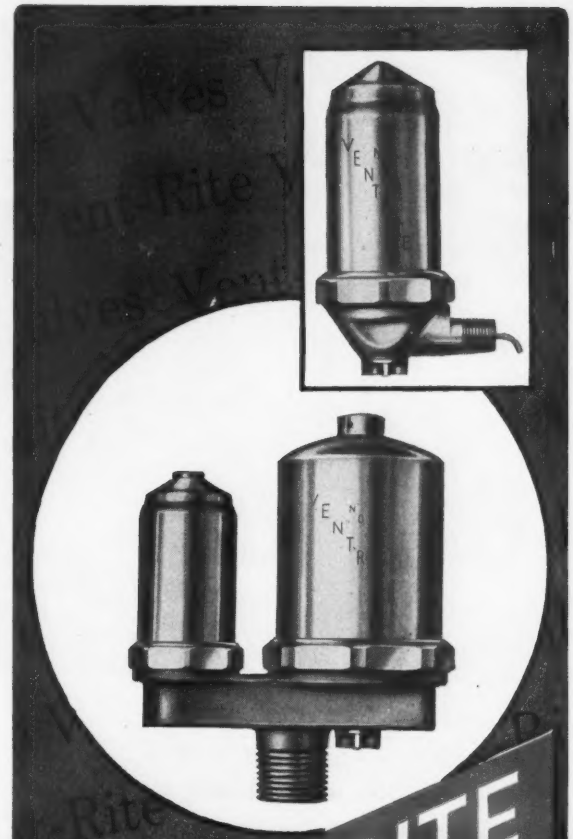
BUILDINGS
Builders and construction men can rely on Fluidyne's dependable service for their operations and for hotel, apartment and domestic layouts.

FOOD PACKERS
Fluidyne is handy for service in washers, coolers, cookers, etc. An excellent pump for liquid transfer. For continuous or intermittent service against head variations.

PEERLESS PUMP DIVISION

FACTORIES: LOS ANGELES 31, CALIF.; INDIANAPOLIS, IND.
District Offices: New York 5, 37 Wall Street; Chicago 40, 4554 No. Broadway; Atlanta Office: Rutland Building, Decatur, Georgia; Dallas 1, Texas; Fresno, California; Los Angeles 31, California

FOOD MACHINERY AND CHEMICAL CORPORATION



VENT-RITE

BETTER Venting Valves

YOUR customers save fuel, and get uniform comfortable heating when you install the Vent-Vac system in their homes.

Vent-Vac, engineered by Vent-Rite, makes use of the latent heat after the boiler has ceased firing, automatically shifting from vacuum to non-vacuum operation for maximum efficiency.

You make a good profit when you install Vent-Vac System Valves (illustrated), as well as cutting service troubles and getting more satisfied customers. Try Vent-Rites on your next job. Write for details.

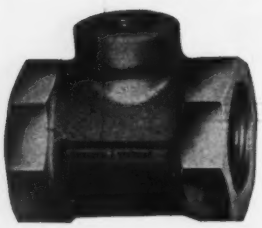
Anderson Products, Incorporated
Cambridge 39, Massachusetts

Sall BROTHERS

Model 200 Pressure Control and Relief Valve.

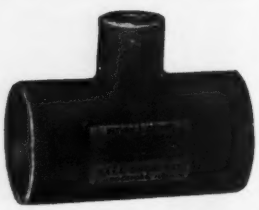
FLOW FITTINGS BY Sall

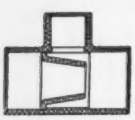
Available in Cast Iron or Copper



SALL Fittings greatly improve the efficiency of the entire hot water system. One fitting on the return line is all that is needed. This directs the free flow of the water through the radiator. SALL Fittings are applicable to both cast iron and copper radiation.

SALL one pipe fittings are available in either cast iron or copper. Sweat type for use with copper tubing.





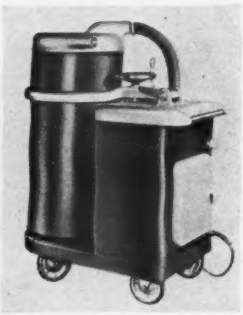
All sizes 1" to 2" upfeed return or downfeed return.

Sall ANGLE FLOW CHECK VALVE

Designed for one and two pipe systems, the SALL Flow Check Valve performs its function unfailingly. Automatic in operation, but when necessary can be locked in position for gravity circulation. Small ½" port at top permits installation expansion tank, preventing air-binding. Learn more about the complete SALL Line . . . get in touch with your SALL representative.

SALL BROS. CO.
2320 KISHWAUKEE STREET
ROCKFORD, ILLINOIS

Industrial Vacuum Cleaner



Product: Portable industrial vacuum cleaners in four sizes with static water lifts ranging from 60 to 105 in. and air velocities from 315 to 480 mph, moving from 200 to 360 cfm of air.

Features: Self-cleaning air filter may be operated even when motor is running, the manufacturer states. The unit can be changed from suction to blowing by the movement of a lever, to make available a blast of air for blowing out motors, gears, belts, fans, and intricate machinery. Both wet and dry materials may be picked up simultaneously, manufacturer states.

Manufacturer: Breuer Electric Mfg. Co., 5100 Ravenswood Ave., Chicago 40.

• • •

Small Electric Water Heater

Product: Electric water heaters of 3½, 6 and 15 gal capacity for light use.

Features: Heaters are designed for use in trailers, summer homes, farm buildings, offices or other places where demands are not heavy. Heating element of larger unit is available for either 110 or 220 v a-c. Smaller heaters operate off normal 110 v current, requiring 1,000 watts. Heating element is of the copper-clad immersion type, controlled by thermostat, which can be set from 110 to 190 deg as required. Water reservoir is of cast aluminum, insulated by glass fibers, and encased in aluminum jacket.

Literature Offered: Illustrated mailing piece. (Form 1077A)

Manufacturer: Handling Equipment Mfg. Corp., Wixom, Mich.

• • •

Fractional Jet-Pump Motors

Product: Motors designed for jet-pump service.

Features: Models are available with standard shaft and keyway, or with stainless-steel threaded shaft for direct mounting of the impeller. Motors are equipped with ball bearings, according to the manufacturer, and a tapped hole is provided in the top end shield for the attachment of a drip cover. Clockwise rotation is employed. Single-phase motors have a built-in automatic-reset overload device.

Literature Offered: Illustrated mailing piece.

Manufacturer: General Electric Company, Schenectady 5, N. Y.

ARE YOU ASHAMED

of the Quality Brass Goods

YOU OFFER YOUR CUSTOMERS?

Then

SWITCH TO

CENTRAL

Now!

Progressive plumbing merchandisers know the customer today demands good goods at a fair price.

The any goods at any price era ended several months ago.

Take inventory of the quality of the Brass Goods you now have in stock—compare quality with CENTRAL.

THE CENTRAL BRASS MFG. CO.

2950 E. 55 St. Cleveland 4, Ohio

NOW...

ONE TUTHILL FUELSTAT OFFERS 4-WAY SERVICE

1... Clockwise rotation with left-hand nozzle port

2... Clockwise rotation with right-hand nozzle port

3... Counterclockwise rotation with left-hand nozzle port

4... Counterclockwise rotation with right-hand nozzle port

To reduce your manufacturing, handling and service costs, Tuthill has designed the new Model 30EN Fuelstat for amazingly flexible performance. Through exclusive features that make possible easy adjustment in the field, one Fuelstat now gives four-way service. What's more, the new Model 30EN is available for immediate delivery. Write for full details and quotation on your requirements.

TUTHILL PUMP COMPANY

939 East 95th Street, Chicago 19, Illinois

REPEAT PROFITS

GENERAL FUEL OIL FILTERS WITH THE RED TOP FOR LARGE FURNACES OR BOILERS • HOT WATER HEATERS • SMALL FURNACES SPACE HEATERS

Model 1A-25. 4¾" High. 3½" Dia. Filter Unit Surface 31 Sq. In. ⅜" Pipe Openings.

Model 2A-700. 6¼" High. 4-5/16" Dia. Filter Unit Surface 72 Sq. In. ⅜" Pipe Openings.

Model 2A-300. 9-1/16" High. 5½" Dia. Filter Size 63 Cu. In. ⅜" Pipe Openings.

YEARLY DIVIDENDS

After making the original sale of a GENERAL FILTER, dealers make a dividend each year through the sale of replacement cartridges. The customer, of course, returns to the dealer who made the original installation —and installation is so simple that it can be made in less than two minutes. If you haven't already done so, investigate the profit possibilities of GENERAL FILTERS. See that each one of your customers has one.

WRITE FOR THE NAME OF YOUR NEAREST JOBBER

GENERAL FILTERS INCORPORATED — GENERAL FUEL OIL FILTER — 12890 WESTWOOD AVE. DETROIT 23, MICHIGAN

CANADIAN FACTORY BRANCH: GENERAL FILTERS CANADA LTD. 173 STRACHAN AVE. TORONTO 3, ONTARIO

NEVER?

NO NEVER — will a MUELLER shower head sputter, dribble or clog. Every time the stream is adjusted, from a stinging needle shower to a gentle rain spray, 28 stainless steel pins move back and forth through the face of the head punching all holes clean and free. Further information upon request.

DEPENDABLE SINCE 1857 — FULLY WARRANTED — OUR 91st YEAR

MUELLER CO.

MAIN OFFICE AND FACTORY DECATUR, ILLINOIS

OTHER FACTORIES: Los Angeles, Cal.; Chattanooga, Tenn.; Sarnia, Ont., Canada

CAYO THE LEADING ELECTRIC SEWER MACHINE

Write for Catalog

New lifetime Floating bearings. Rigid steel Construction. Over 16 years practical experience back of each CAYO Precision Built Sewer Machine. Cleans thru 90° bends and running traps. One minute assembly and breakdown.

Complete equipment consists of machine with 110 feet of cable. One safety foot switch. One 20 foot length of electric cord. 3 cutting blades 2, 4 and 6 inch with steel chuck.

SAFETY FEATURES. (1) The motor under extreme labor, compresses safety support springs, allowing slippage of V-Belt. (2) Safety foot switch enables operator to work with both hands on cable at all times.

Price per unit complete

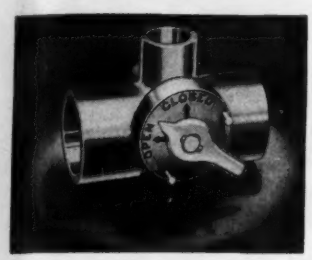
$343.20 F. O. B. Benton Harbor

See your jobber or order direct

Cable available for immediate delivery

CAYO ELECTRIC SEWER MACHINE
BENTON HARBOR, MICH.

Adjustable Flow Tee



Product: Adjustable flow tee for solder connections in copper one-pipe hot water heating installations.

Features: Fittings are made of bronze for solder connections with copper one-pipe heating systems having ½ in. takeoff connections to radiators and headers of 1½, 1¼, 1, or ¾ in. diameters. According to the manufacturer, any amount of flow can be diverted through each radiator, and by restricting branch flow, increased flow is sent through mains. Shutting off the radiator opens the main flow completely. All radiators can be kept at the same temperature by adjusting fittings to balance the system, or increased heat can be diverted to certain hard-to-heat or high-temperature rooms. Partially closing the fitting will keep the room at a temperature lower than other areas. One tee is needed for each up-feed radiator.

Manufacturer: H. A. Thrush and Co., Peru, Ind.

• • •

Gas Water Heater

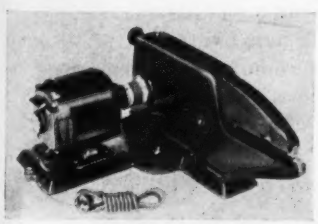
Product: Gas water heaters of 30 and 40 gal storage capacity.

Features: Heaters are rated at 28 gal per hour for 60 deg temperature rise. The flue is off-set, mounted at the rear of the combustion chamber. Thermostatic control and automatic safety shutoff are provided. Inside of tank is accessible through removable brass plug for cleaning accumulations of lime on the heating surfaces. Tank is insulated with rock wool, arranged to give greatest insulation at the top of the tank. Casing is of white baked enamel.

Manufacturer: Bock Corporation, 110 South Dickinson St., Madison 3, Wis.

• • •

High-Speed Shear



Product: Power driven sheet metal shear.

Features: Material of almost any shape can be placed over the head or under the base for cutting, the manufacturer states. By means of a locking device requiring no starting hole, both straight and contour inside cutting is done. Finger-tip control of the stroke and rapid adjustment of the cutting blades for very light material is a feature. Shear will handle pipe work, pans, channels, tubes, shells, etc. of various diameters and depths, within the limits of its 7 in. throat. Has ¼ hp motor.

Manufacturer: Federal Machinery Co., 134 Grand St., New York City.

THE STORAGE TANK WILL LAST LONGER WITH

"Elno"

Trade Mark

THE MAGIC WAND

Now you can tell your customers that the storage tank will last twice as long as heretofore. That is, if you insert an "Elno" — the magic magnesium-alloy rod — into the storage tank.

"Elno" is a great advance in water heating. It prevents corrosion of the storage tank, and eliminates rusty water caused by storage tank corrosion.

"Elno" Protectors are made to fit all makes of Automatic Storage Water Heaters, Range Boilers, and Large Volume Hot Water Storage Tanks. There is an "Elno" Protector made to fit the water heater you sell.

They are easy to install. "Elno" Protectors are made with a hot water fitting to match the fitting on the water heater you sell. Remove the hot water fitting and replace it with the "Elno" rod. Use a sectional "Elno" if the water heater is already installed.

Cash in on this new selling feature: "Elno" Protection. Your supply house carries "Elno" Protectors in stock or send for catalog and prices.

"ELNO" THE ORIGINAL ANODIC ROD

Look for the Trade Mark

THE CLEVELAND HEATER CO.

2310 Superior Avenue Cleveland 14, Ohio

L. E. Byfield Architect
Leo Lippman Owner
Klein & Kuhn Realtors

in MORE THAN 300 WINDSOR VILLAGE (Indianapolis) HOMES

RADIANT FLOOR PANELS plus *Triplex* SPECIALTIES

Assure Hot Water Heating at its BEST

In selecting the best type heat for more than 300 homes without basements, it was logical for the principals in charge of developing and building Windsor Village (Indianapolis) to agree on hot water with radiant floor panels. For assurance of unvarying winter comfort, it was just as logical for them to specify Triplex Specialties . . . economical, too, since standard Triplex Circulators (at no extra cost) could be used for fully effective hot water circulation in all the homes. Best of all, heating results and buyer satisfaction are meeting the highest expectations. Yes, *Triplex means hot water at its best* . . . in performance, popularity, and profits for you. Write today for latest catalog.

Direct Drive Circulators

Relief and Pressure Reducing Valves

Air Vent Valves

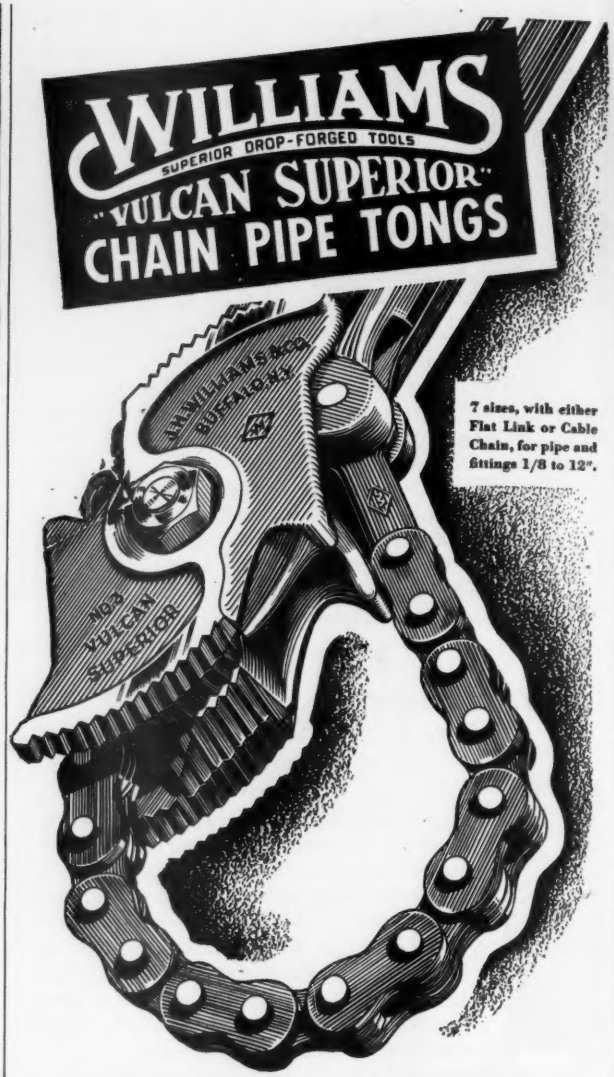
Indirect Heaters

Triplex
HEATING SPECIALTY CO., INC.
PERU, INDIANA

In addition to units illustrated, the Triplex line includes—Direct Drive Vertical Circulators, Indirect Drive Circulators, Flow Control Valves, One-Pipe Distributors, Expansion Tanks, Air Eliminators, Water Mixing Valves, Tankless Heaters, Control Units, Electrical Controls, Barometric Draft Dampers, Sump Pumps.

SEE YOUR WHOLESALER TODAY

WILLIAMS
SUPERIOR DROP-FORGED TOOLS
"VULCAN SUPERIOR" CHAIN PIPE TONGS

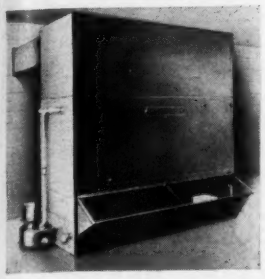


7 sizes, with either Flat Link or Cable Chain, for pipe and fittings 1/8 to 12".

● Pipe or fittings—it makes no difference to "Vulcan Superior," the universal service tong. You can switch from one to another without adjustment or change of parts. And "Vulcan Superior" is the only chain tong with *reversible* pipe-and-fittings jaws. When one set of teeth begins to wear, simply remove the Through-Bolt and reverse the jaws. Sold by Plumbing Supply and Industrial Distributors everywhere. Literature on request.

J. H. WILLIAMS & CO., BUFFALO 7, N. Y.

Evaporative Condensers



Product: Evaporative condensers for large air conditioning installations.

Features: Condenser uses both air and a water spray to cool hot refrigerant vapor and change it into a liquid during the normal course of a refrigeration or air conditioning cycle. Models operate as separate, remotely installed units, and are used with matched evaporative-type compressors, which are built without condensers. By employing forced air and a pressurized water spray, the evaporative condensers reduce water consumption as much as 90 percent for hotels, institutions, theaters, stores, offices and other business houses where large air conditioning and refrigeration systems are installed, manufacturer claims. The new models, with refrigerating capacities ranging from 2 to 50 tons, help solve water disposal problems where drainage facilities are limited. In operation the evaporative-type condenser's fans draw air into the unit through an intake grille. At the same time, water is sprayed into the air stream, wetting the surface of the condensing coil, which contains hot refrigerant vapor from the compressor. This vapor, cooled by the joint action of the air and water, is restored to its liquid state, moving on to the cooling unit. The condensers, except the 2-ton model, are comprised of fan, coil and base sections. The fan section is located at the top and may be arranged for front, rear or vertical discharge, depending upon re-

DESIGNED TO STAY CLEANER LONGER

LP-20
Available in Black or White

- **OPEN FRONT AND BACK DESIGN . . cuts cleaning time to a minimum. No germ collecting crevices . . always sanitary.**
- **SELF-RAISING . . seat remains upright when not in use with bowl serving as urinal. Seat stays clean and dry.**
- **DURABLE . . . double strength plastic pads are shatter-proof, fireproof. Assure long life with minimum maintenance.**
- **SOLID PLASTIC . . . strong and durable. Plastic covered hinge is moisture proof, dirt free.**

WRITE NOW for catalog for full details on model LP-20 (illus.), model LP-40 with self-sustaining hinge, and a complete line of conventional models.

DEPT. DE.

THE SPERZEL COMPANY
All Sperzel Seats fit Standard Bowls
123 14th AVENUE S. • MINNEAPOLIS, MINN.

Sherman

ROUGH NICKEL

SHOWER FIXTURES

For:
Factories
Home Basements
Summer Cottages
Playgrounds
Outdoor Swimming Pools
Camps, Etc.

No. WM564-B

50 YEARS 1896 S 1946 OF LEADERSHIP

Yes, you can again purchase this famous Sherman industrial type Shower Fixture. We're in production now, and this new Shower Fitting is better than ever before. The new fixture is now equipped with the latest type cleanable Shower Head, and ***the exclusive Sherman "Water Master" Ball Bearing Stems*** which take the wear off the valve washers.

These Ball Bearing Stems prevent the expensive waste of hot water that ordinarily results from worn washers, and they eliminate the need for frequent washer replacements — both important advantages in Shower Fixtures that are used in heavy duty service.

Your Sherman Wholesaler can supply you with these Fittings. Ask him about them.

Also

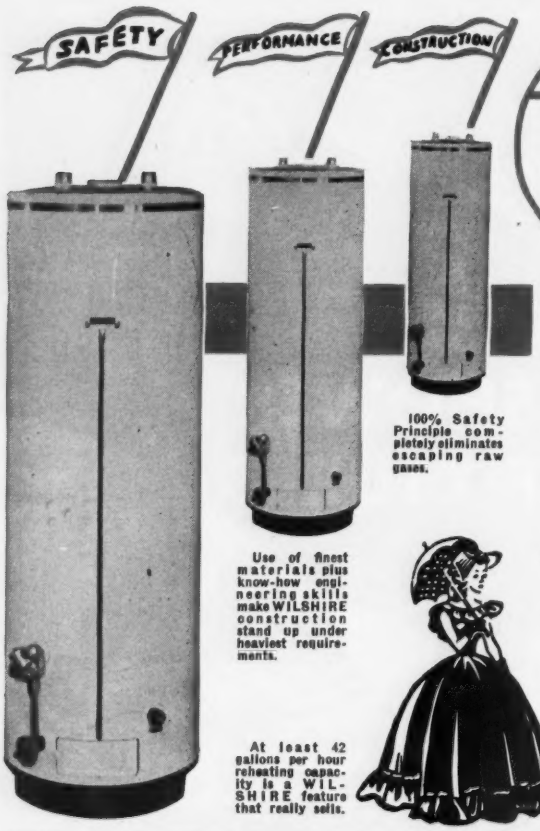
Rough Nickel
SHOWER VALVES ONLY

Made of heavy cast brass, Rough Nickel finish, and equipped with "Water Master" Ball Bearing Valve Stems. May be installed with supply pipes from either ceiling or floor. Available with or without Soap Dish.

H. B. SHERMAN Mfg. Co.
BATTLE CREEK, MICH.

Sherman
"WATER MASTER"
Ball Bearing FAUCETS

Sold through recognized, authorized Plumbing Wholesalers, to Master Plumbers only.


SAFETY
PERFORMANCE
CONSTRUCTION
100% Safety Principle completely eliminates escaping raw gases.
Use of finest materials plus know-how engineering skills make WILSHIRE construction stand up under heaviest requirements.
At least 42 gallons per hour reheating capacity is a WILSHIRE feature that really sells.

Wilshire

AUTOMATIC STORAGE WATER HEATER

. . . . A PARADE OF SOLID VALUES BUILT INTO 1 HOT WATER HEATER

The new WILSHIRE has advanced to a leading position in hot water heater sales. This popularity is based on WILSHIRE'S marching progress in safety, performance and construction engineering . . . on WILSHIRE'S combining in 1 hot water heater all the features modern customers recognize as best meeting their needs. Homeowners, commercial and industrial engineers all have joined in the WILSHIRE parade.

Get on the profit-spangled WILSHIRE band wagon! WILSHIRE's in demand! Specify and sell WILSHIRE heaters for every installation where hot water on tap all around the clock is necessary and demanded.

ORDER FROM YOUR PLUMBING JOBBER

The WILSHIRE Heater's Out front by a mile. Folks want it . . . You sell it And balance sheets smile!

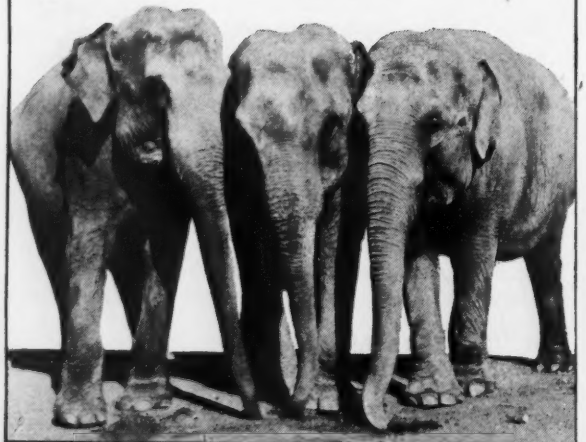
Southern Heater CORPORATION

133 E. PALMER AVE. COMPTON, CALIF.

STRONG

Reichert Copper Floats

LONG LIFE



Patented seam and spud construction
Guaranteed leak-proof.

Write for folder on complete line.

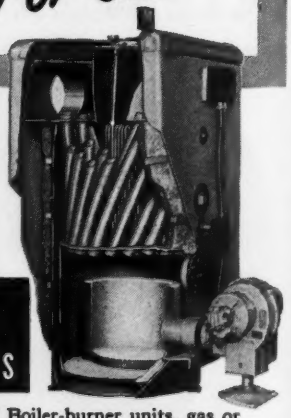
THE REICHERT FLOAT & MFG. CO.

2238 SMEAD AVE. TOLEDO 6, OHIO

Finer Performance with Oil or Gas

ASME CONSTRUCTION

EXCLUSIVE SPIRAL TUBES



Mt Hawley BOILER-BURNER UNITS

104,000 to 1,043,000 BTU Boiler-burner units, gas or oil-fired. Exclusive Spiral Tube design extracts more heat, reduces stack temperature by 100°. 7 sizes—3 domestic; 4 commercial. Shipped assembled, just remove crate. Easy to install. All sizes available galvanized for water heating. Write for literature.

MT. HAWLEY MFG. COMPANY

2, Mt. Hawley Airport, Peoria, Illinois

Manufacturers of a complete line of conversion oil burners—0.65 to 20 G.P.H.

quirements. The coil, constructed of either steel or copper, is below the fan. The base section is of welded steel with rust-resistant finish. Located at the top of the base section is the air intake grille. The receiver is also located in this section, surrounded by sump water, and has inlet and outlet shut-off valves so that the system can be pumped-down without losing refrigerant. The 2-ton condenser has a welded-steel casing with a rust-resisting finish. It is equipped with a 2-in. lip for optional installation of a short duct. The coil is copper tubing with brass fins. Two removable brass nozzles provide a fine mist-spray, automatically controlled by an adjustable valve. In addition, this condenser may be converted into an air-cooled unit for cool weather operation. It may be installed in or near a window—or outside if protected. Multiple installation is possible when additional capacity is required. Coils are of the primary surface-type. Protective panels can be removed to reach spray nozzles and the coil itself. Blowers are die-formed and equipped with multi-bladed fans. An open-impeller, vertical-type submerged water pump, is employed. Spray nozzles, of bronze, are of the low-pressure hollow-cone type.

Manufacturer: Frigidaire Div., General Motors Corp., Dayton 1, Ohio.

• • •

Flue Filter

Product: Grease filter for use in range flues.

Features: The filter, which can be installed in a range canopy, is designed to trap grease before it enters the flue, according to the manufacturer.

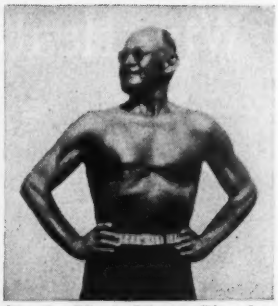
Manufacturer: Filtair Manufacturing Co., 487 So. Van Ness Ave., San Francisco 3.

PLUMBER FOR 50 YEARS USES HERCULES SINCE 1915

Charles Mock, 73, a famed master plumber, is a champion in several fields. Look at that picture on the right—taken when he was 72 years old! In his younger days he was a bike racing champ; for fifty years, a highly successful plumber in New York City—and since 1915 he has used Hercules, the champion brand of plumbing chemicals.

On the large heating plants of 15-story apartment houses, Mr. Mock uses Hercules Boiler Cleaner and Hercules Boiler Liquid for cleaning and repair work. "Consistently excellent results," he says.

Like Charles Mock, many plumbers have learned of the merits of Hercules, a complete line of 23 plumbing chemicals. Ask your jobber for Hercules.



Charles Mock, Master Plumber

SUBSTITUTE FOR LEAD

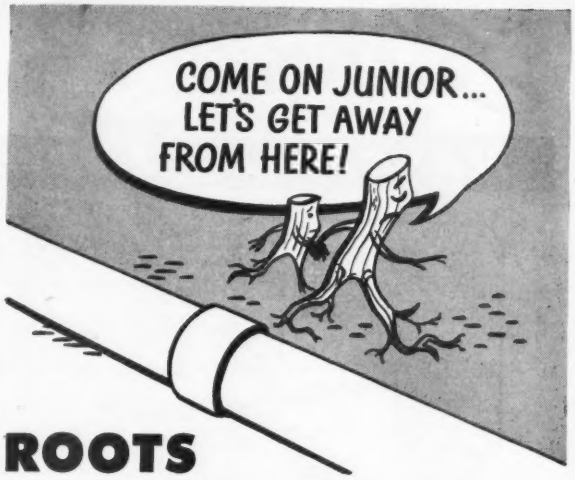
Throughout the country, many plumbers are using Hercules Plastic Lead, as a substitute for molten lead on soil pipe joints. This product also repairs cracked radiators, flush boxes, steel pipe. For more information write us or consult your jobber.

SEVERE WINTER AHEAD

According to Weather authorities, the cold weather in most parts of the country is yet to come, and with it cracked boilers. Hercules Boiler Liquid and Hercules Boiler Solder are a sure cure for leaking Boilers and profit-builders as well. Hercules Boiler Liquid and Solder will not wash away when Boiler Cleaner is used, nor cause boilers to prime or foam.

Do it the right way—order Hercules today, from your Jobber.

HERCULES CHEMICAL CO.
332 CANAL ST. · NEW YORK 13, N.Y.



ROOTS don't like this pipe— but *YOUR CUSTOMERS WILL!*

TRANSITE,* the *white* house connection pipe made by Johns-Manville, is quickly assembled with special joints that make a positive seal which safeguards against root trouble.

When you put Transite House Connection Pipe on the job, you can be confident it will stay on the job for a long time . . . give your customers maximum protection from the annoyance of root-clogged sewer lines.

You will like working with this modern house connection pipe, too. It comes in long 10-foot lengths that make tunneling practical . . . simplify installation under sidewalks and roadways . . . and minimize disturbance to property. There's only one joint every 10 feet when you use Transite!

Here is a pipe that resists corrosion, too. It's made of asbestos and cement—the same durable type of pipe that's used for street sewer mains in many cities and towns. A full line of Transite fittings is also available.

See your distributor for full information—or write Johns-Manville, Box 290, New York 16, N. Y.

JOHNS-MANVILLE JM PRODUCTS

ON THE AIR! **Home owners throughout the country are hearing about Transite House Connection Pipe on the radio. It is featured at frequent intervals on J-M's popular program "Bill Henry and the News," now broadcast over 369 Mutual Stations coast to coast. Listen in at 9:55 P.M., E.S.T.**

*Transite is a Johns-Manville registered trade mark

TRANSITE

The White

HOUSE CONNECTION PIPE

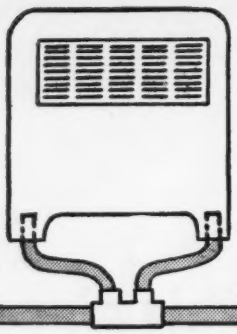
Made by Johns-Manville

Saves 3 ways

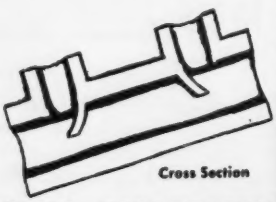
MATERIAL, LABOR, TIME

Master-Dual-Flow

FOOLPROOF FITTING DESIGNED FOR ONE PIPE FORCED HOT WATER SYSTEMS



The Master-Dual-Flow is a special fitting designed for one pipe forced hot water systems. There are no arrows to follow when installing. Operates on any angle and on downfeed radiators. One Master-Dual-Flow needed per radiator. Saves material, labor and time. Gives quicker circulation and better flow. Many new homes are now enjoying the Master-Dual-Flow.



IMPOSSIBLE TO INSTALL INCORRECTLY

The Master-Dual-Flow is sold only through recognized jobbers. Write now for literature and price list. Manufactured in Bronze for Copper Tube installations and in Cast Iron for Iron pipe. Sizes 1" x ½", 1¼" x ½", 1¼" x ¾" are available now!

THE Mel Products COMPANY

MANUFACTURERS & DISTRIBUTORS FOR THE WHOLESALE TRADE

554 CHAPEL STREET • NEW HAVEN CONN.

5 GOOD REASONS

FOR USING ROOTO

TO CLEAR ROOT BLOCKED SEWERS

1. Requires no digging.
2. No investment in mechanical equipment.
3. Kills bacteria and leaves premises clean.
4. Modern and economical to use.
5. Effective in clearing septic tanks.

Send today for the little booklet with the BIG MESSAGE—more profits to you!

THE ROOTO CORPORATION

1333 Dime Bldg., Detroit 26, Michigan

Boiler Tube Cleaners Wire Heater Brushes

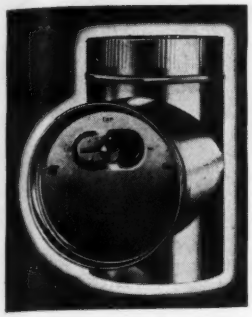
WORCESTER BRUSH AND SCRAPER CO.

Division of

MASON-WORCESTER CO.

WORCESTER, MASS.

Barometric Draft Control



Product: Barometric draft control for use on space heaters and ranges.

Features: New draft control is made for use with 6 in. flue pipe. Large diameter, counter-balanced gate operates in an extended collar, located beyond the flow of heat and smoke, but recessed to direct the air entering the collar against the gate, manufacturer says. Gate is sensitive to barometric changes and is adjustable for high, medium or low drafts, and can be revolved in the collar to permit either vertical or horizontal mounting, the manufacturer claims.

Manufacturer: Field Control Division, H. D. Conkey and Co., Mendota, Ill.

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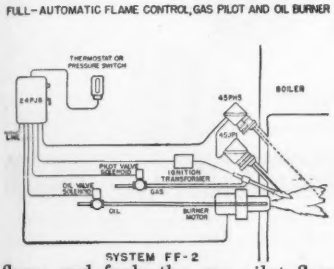
Flame Failure Safeguard



Product: Photoelectric flame failure safeguard for oil burners.

Features: The control supervises both the gas pilot flame and the main oil flame of fully automatic oil burners. A flame rod feels the gas pilot flame, and will not permit opening the main oil valve unless pilot is ready for proper ignition. Photoelectric scanner is designed to withstand relatively high ambient temperatures in monitoring the oil flame, manufacturer states. The programming control is designed to provide accurate setting of both oil valve delay and ignition periods.

Literature Offered: Bulletin 4753.

Manufacturer: Combustion Control Corporation, 77 Broadway, Cambridge 42, Mass.

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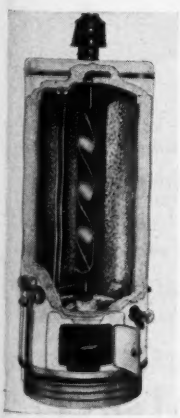
Gas Water Heaters



Product: Automatic gas water heaters for use with natural, manufactured or L.P. gases.

Features: Models have drilled, raised-port burner, blanket-type glass fiber insulation, and steel tank. Also included is a spiral baffled internal flue, dial temperature control, safety shut-off, and concealed hot and cold water connections. The burner is located in the center of the base and the internal flue is off-center in the tank to produce a flame wiping action on the bottom of the tank to help give rapid heat transfer and maximum recovery. Four sizes are available: 20, 30, 45 and 66 gal.

Manufacturer: Norge Heat Division, Borg-Warner Corporation, Detroit.

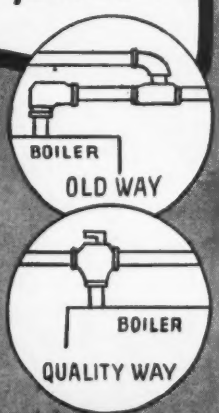
AT No EXTRA COST

YES, you will be amazed at the savings in actual dollars and unnecessary labor that QUALITY's new "SWEATFLOW" will afford you. Specifically designed for direct "sweat" connections with copper tubing, the "SWEATFLOW" completely eliminates the need for sweat adapters. Constructed of all-bronze throughout. Available in sizes 1" and 1¼".

SWEAT-FLOW
BRONZE
CONTROL VALVE

- Precision tooled by master craftsmen.
- Most simplified valve on the market.
- Special, "easy-to-read" valve opener.

You Can Install
QUALITY "T" FLOW CONTROL VALVE
in One Easy Operation



Dollars ahead! Customer satisfaction! *Actual time-saving on the job!* That's what you get with the new QUALITY "T" FLOW, 2-DIRECTIONAL, CONTROL VALVE. One simple installation eliminates old style L's, T's, short lengths of pipe. Durably constructed for long life and trouble-free efficiency.

- T-Joint principle affords *direct*, uninterrupted 2-directional flow. Neater, more compact, more professional appearing job.
- Available in sizes 1", 1¼", 1½" and 2".

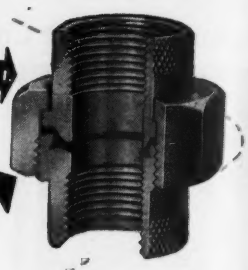
Quality valves easily obtainable through local dealers

QUALITY SPECIALTY COMPANY, INC.
MANUFACTURERS
211 N. 2nd STREET • PHILA. 6, PA.

Clayton ENGINEERED PIPE FITTINGS...

...are SUPERIOR

TESTED COMMERCIAL LAB. • UP TO 10,000 P. S. I.



PRECISION MADE
•
TESTED DESIGN
•
MILLIONS IN USE THROUGHOUT THE U. S.

FITTINGS

- Stronger, close tolerance, non-leak.
- Strong threads accurately cut to American Briggs Standards for tapered iron pipe threads.
- Zinc plating on Galvanized Fittings.
- Rust preventative (coating) on Black Fittings.
- Identical expansion coefficient of Clayton Fittings and steel pipe assure non-leak joints.

CLAYTON UNIONS

- Price of Clayton Universal 300-lb. Unions permits use on 150, 250, or 300-lb. oil, water, gas or steam installations.
- Perfect seal of accurately machined ball seat with brass seat.
- Strong, full-depth, precision tapered threads cut to American Briggs Standards.
- Free Flow assured by smooth, machined and reamed internal surface.
- Conform to Federal Specifications.

★ *Available in all Reducing Sizes

PIPE FITTINGS EXCLUSIVELY

Clayton

CLAYTON FITTINGS MFG. CO.
CLAYTON • ST. LOUIS 5, MO. • U. S. A.
CABLE ADDRESS: CLACO

Engineering + Skilled Mechanics + Modern Precision Machinery + Perfect Material = SUPERIOR, UNIFORM FITTINGS

SOLD THROUGH PLUMBING AND HEATING JOBBERS

GUARANTEED for the Life of the BUILDING IN WHICH INSTALLED

CALCO gives you Guaranteed Customer Satisfaction, Moderate Prices and Big Profits. Look for the CALCO Gold Tag Guarantee.

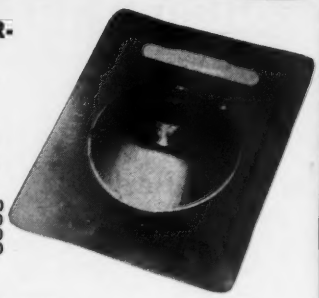
Sold exclusively through Plumbing Heating and Industrial Wholesalers

CALCO VALVES FAUCETS FIXTURES

CALIFORNIA BRASS MFG. CO.
1447 NAUD STREET • LOS ANGELES 12, CALIF

YOUR CUSTOMERS WILL INSIST ON USING...

GRODAN FOREVER-WARE ROOF FLASHINGS!



IMMEDIATE DELIVERY

LIST PRICES for Aluminum Flashings

4" Flashings per Dz.	$12.00
3" Flashings per Dz.	11.50
2" Flashings per Dz.	10.00
1½" Flashings per Dz.	8.00

Copper List Price Double of Aluminum

Note these Exclusive Features:

1. Made of heavy gauge aluminum or copper.
2. The lead collar is attached to the base by *Grodan's* new interlocking process. It CANNOT come loose.
3. Fits standard or extra heavy soil pipe: designed to fit flat or pitched roofs.
4. A superior item at a competitive price.
5. The FOREVER-WARE Flashing is pliable and easily formed to fit any contour of the roof.
6. Approved by the Federal Housing Administration.
7. Nails are furnished. No more climbing up and down the ladder looking for nails.

SOLD EXCLUSIVELY THROUGH PLUMBING JOBBERS
FOREVER-WARE PRODUCTS — MANUFACTURED BY

GRODAN MFG. & SALES CO.
14549 MEYERS ROAD • DETROIT 27, MICHIGAN

News of Sales Aids

Electric Clock Thermostat

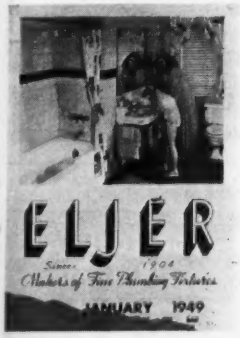
Literature: Booklet 4½ by 6 in., illustrated with cartoons, for distribution to customers.

Contents: Booklet describes 20 ways in which heat is lost or wasted in the home and how a day-night thermostat, clock controlled, helps to save fuel by turning down temperature at bedtime and raising it again in the morning. Heating facts and fuel conservation are explained in simple language, aided by cartoons of Ali Baba and his twenty heat thieves.

Issued by: Minneapolis-Honeywell Regulator Co., Minneapolis 8.

• • •

1949 Calendar



Sales Aid: Calendar in full color, 25 by 12½ in.

Features: New 1949 calendar, available for use in showrooms and for distribution, features a four-color photograph of mother and young daughter at twin lavatories in a modern bathroom. Calendar sheets are stapled to cardboard back for easy removal monthly.

Issued by: Eljer Co., Ford City, Pa.

• • •

Fluorescent Sign

Sales Aid: Flourescent lighted showroom sign.

Features: Sign is of blue plastic, with yellow embossed letters advertising manufacturer's water systems. A fluorescent tube within the sign lights the sign for night time visibility.

Issued by: Flint and Walling Manufacturing Co., Inc., Kendallville, Ind.

• • •

Blind Fasteners, Rivets

Literature: Illustrated data book, 5½ by 8½ in.

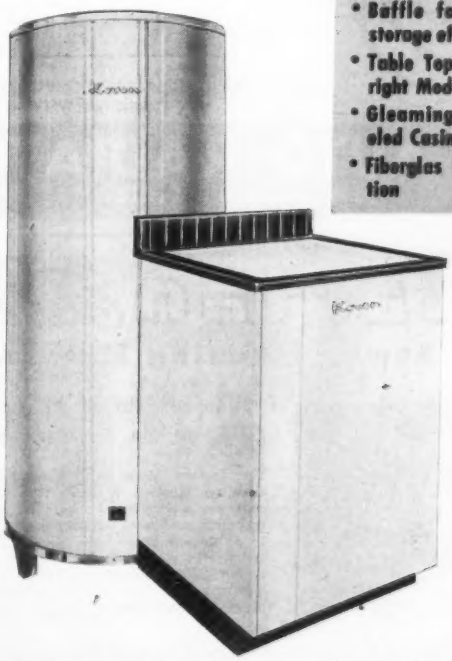
Contents: Fasteners were originally made for use as blind nut plates only, but can also be used as rivets in several manufacturing and shop fabrication fields. Descriptions of the fasteners and power and manual tools are included.

Issued by: The B. F. Goodrich Company, Akron, Ohio.

Koven
AUTOMATIC ELECTRIC WATER HEATERS

OFFER EVERY IN-DEMAND FEATURE!

- Plenty of hot water at all times
- Advanced Design
- Precision Engineering
- Smart Appearance
- Cathodic Protection (optional)
- Zinc-clad or Copper Tanks
- Adjustable Thermostats
- Chromalox Immersion Elements
- Baffle for best storage efficiency
- Table Top or Upright Models
- Gleaming Enameled Casing
- Fiberglas Insulation



Naturally, when your customers learn that automatic electric water heaters by KOVEN are safe, silent, dependable . . . always supply plenty of hot water *at an economical cost* . . . and have every feature of construction that insures efficiency, they'll decide to buy! Back your salestalk with a full display of models and sizes suited to various requirements.

Liberal 10-year guarantee on pure copper or extra-heavy copper-bearing galvanized steel tanks when ordered with cathodic protection.

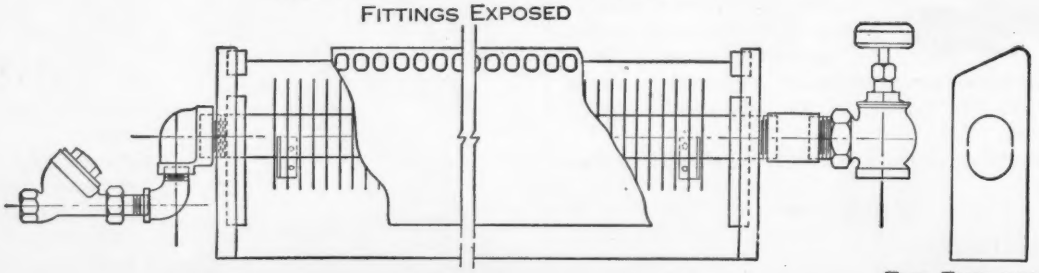
BEAUTY ECONOMY EFFICIENCY PERFORMANCE

L. O. KOVEN & BRO., Inc.
154 OGDEN AVE., JERSEY CITY 7, N. J.
Plants:
Jersey City, N. J. Dover, N. J.

AUTO-RAD BASEBOARD CONVECTORS

Auto-Rad Base Board Convectors are ideal for homes and offices. Heating element is constructed of 1¼" pipe size tubing with 2½" x 4¼" steel fins. Enclosures are 2¾" deep by 8" high. Grill and front can be easily removed for cleaning. End enclosures are stamped with knockouts for exposed fitting installations. Made in random lengths to 12 feet. Write for Bulletin A-48.

TWO PIPE STEAM HEATING SYSTEM
FITTINGS EXPOSED



ABOVE DRAWING INDICATES SUGGESTED METHOD OF INSTALLATION.
FITTINGS NOT FURNISHED WITH AUTO-RAD CONVECTORS.

END ENCLOSURE
SHOWING KNOCKOUT PLUG

AUTO RADIATOR SPECIALTY CO.
3535 FILLMORE STREET ESTABLISHED 1920 CHICAGO 24, ILLINOIS

Spartan Electric
Sewer Cleaning Machine

Removes Roots Without Digging Up Sewer Lines

The Spartan Model 800 Electric Sewer Cleaning Machine is first choice with plumbers and maintenance men for removing roots and other obstructions from 3" to 8" lateral sewer lines. One man operated—fits easily into trunk of car. Foot switch control leaves both hands free to handle cable. Does the job quickly and easily—pays for itself in a few weeks.

Double strength Spartan cable is especially reenforced with inner core to withstand added torque of motor driven machines and is actually strongest when the going is toughest. Amazing flexibility enables operator to pass cutting blades through sharp bends or elbows in sewer lines. (See photo at right)

New Improved 1949 Model
ELECTRO-ROD
Sink Line Cleaning Machine

The Spartan ELECTRO-ROD is equipped with various cutting blades to handle all types of stoppages in 1" to 4" sink and drain lines. Push-button device tilts container directly at cleanout. Container swivels allowing cable to be fed more easily into cleanout. Detachable motor is ideal as slow-speed drill for masonry drilling when used with carbide tips.

Complete information gladly sent on request.

Spartan TOOL CO.
6013 NORTH LINCOLN AVE. CHICAGO 45, ILLINOIS

Capacities to 150 G.P.M.
(Both Horizontal and Vertical)

APCO Horizontal Simplex Condensation Return Unit

These units are available in simplex and duplex types—designed for the automatic return to high and low pressure boilers of the hot water condensation from radiators, coils, etc. Catalogued in sizes ranging from 2,000 to 100,000 sq. ft. equiv. radiation. Larger sizes available.

APCO TURBINE-TYPE PUMPS

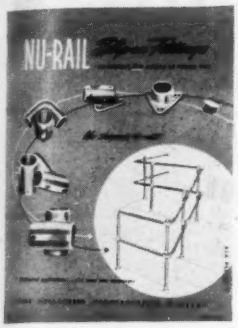
Apcos are ideal for the above service or any small capacity, high head duty. The one moving part, the impeller, is free running, therefore unaffected by heat expansion. Ability to maintain practically constant capacity against drastic pressure conditions is another of many distinctive features.

AURORA CENTRIFUGALS
for Every Pumping Job
HORIZONTAL SPLIT CASE
Single & Two Stage
SIDE SUCTION
VERTICAL
NON CLOG
SUMP
MIXED FLOW
SPECIAL DESIGN
Write for CONDENSED CATALOG "M"
or
Consult SWEETS

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA Always PUMPS
AURORA PUMP COMPANY
70 Loucks Street, AURORA, ILLINOIS

Pipe Rail Fittings



Literature: Illustrated 4-page catalog, 8½ by 11 in. (A.I.A. File No. 14)

Contents: Manufacturer's slip-on fittings for constructing pipe handrails, barricades, scaffolding, and racks are shown, and suggested uses are illustrated. Fittings listed include a standard cross, an offset cross, adjustable angle cross, corner, swivel, wall flange, floor flange, and plug, for pipes ranging from ¾ to 2 in. nominal size. Set screws hold pipes in fittings.

Issued by: The Hollaender Manufacturing Co., 3841 Spring Grove Ave., Cincinnati 23.

• • •

Drill Power Saws

Literature: 4-page mailing piece, 3½ by 6 in.

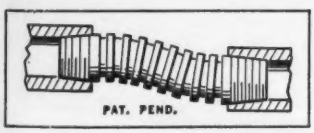
Contents: Folder furnishes information on three saws (which operate off drill motor or other portable electric motor) and interchangeable cutting heads for use in heating and ventilation copper and lead work, etc. One is for hard rigid materials up to ¼ in., another for soft rigid materials up to ½ in., and the third for soft pliable materials up to ½ in.

Issued by: The Kett Tool Company, 5 East Third Street, Cincinnati 2.

plumbers-steamfitters

ALIGN E-Z NIPPLES

solve more of your "out of line" problems

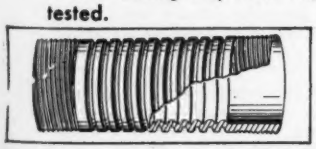


check these ***extra*** *advantages*

Full strength. None of the copper is removed. The grooves are rolled right into the copper, as illustrated below.

They bend farther. Align E-Z Nipples bend a *full* 22½°, covering a greater range of aligning jobs.

Longer life. Threaded, rolled and annealed to the most exacting requirements, each nipple is precision-tested.



See your jobber—or write for name of stocking jobber nearest you.

RA-RICH MFG. CORP. HOLTSVILLE, L. I.

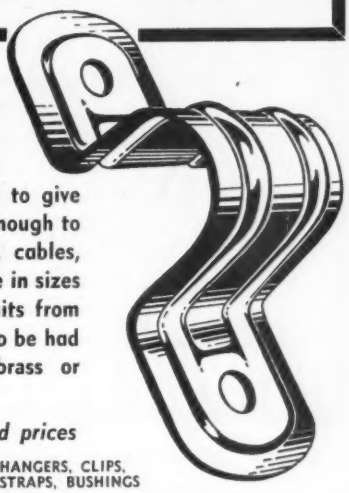
manufacturers of the

Finest Brass, Copper and Chrome Plated Nipples

MINERALLAC 2-HOLE

PIPE STRAPS

For Heavier Loads!



Designed for use on loads too heavy for one-hole Jiffy clips. Made of all new zinc plated tempered steel to give strength and rigidity enough to support heavier pipes, cables, conduits, etc. Available in sizes to fit pipes and conduits from ¼-in. to 1-in. Can also be had in Everdur, copper, brass or aluminum.

Send for literature and prices

Specify MINERALLAC HANGERS, CLIPS, STRAPS, BUSHINGS

MINERALLAC ELECTRIC COMPANY
23 N. Peoria St., Chicago 7, Illinois

MINERALLAC

SPRING-LOAD cuts clean, easy to operate
SPRING-LOAD cuts 2" to 12" pipe
SPRING-LOAD eliminates old costly methods
Pay for SPRING-LOAD from your scrap pile

SPRING LOAD

CUTS CAST IRON SOIL PIPE WATER PIPE DURIRON PIPE

Accurately - Swiftly Without Splitting

SPRING-LOAD saves you time and money.

You can't crack or waste pipe with SPRING-LOAD. Cuts are clean, without depressions or ears.

SPRING-LOAD cuts 2" through 12" pipe ten times faster and easier than conventional methods.

SPRING-LOAD eliminates costly dismanteling. Cuts between joists, in narrowest trench and hard-to-get-at places.

SPRING-LOAD pays for itself from salvage from your present scrap heap. Cuts within a fraction of an inch from end of pipe, crack or bell-end.

SPRING-LOAD is a light, on-the-job tool; precision built from highest quality steel. **$44.75**

Write for Free Folder and Name of Nearest Distributor

Richmond Sales Company

507 Westlake No. Seattle 9, Wash.

POWER VISE STAND

(A portable power drive for hand pipe tools)

Now is the time to compare PRICES as well as FEATURES

Compare Oster's price of $160.00 for the ORIGINAL No. 422 POWER VISE STAND with the price of any similar machine on the market today. Then compare features.

You'll find that Oster gives you ALL the advantages at the LOWEST price! WHY PAY MORE?

It's a Dependable, Profit-making Investment!

Every owner is enthusiastic about the cost-cutting, profit-making performance of the Oster POWER VISE STAND. Some owners tell us the machine paid for itself on the first job. Photostat copies of their letters are available upon request.

REGULAR EQUIPMENT

Equipment furnished at the price of $160.00 consists of universal, geared head motor and switch for operation on 110 volts; front gripping chuck; rear centering chuck; two carrying arms; feet for front legs; vise mount plate; and pipe bending fixture. (No legs, vise or pipe tools included.) (Legs can be made from standard 1" pipe.)

STANDARD RANGE

Standard Range is ⅛" to 2" pipe. When used with special universal drive shaft, there is ample power to drive geared receding die-stocks and cutters up to 6" capacity inclusive.

PROMPT DELIVERY ASSURED

Order from your OSTER JOBBER *today!* Catalog No. 22-A on request.

THE OSTER MANUFACTURING CO.
2045 EAST 61st STREET • CLEVELAND 3, OHIO, U. S. A.

OSTER PIPE THREADING HEADQUARTERS

HOW MORE SALES + CUSTOMER SATISFACTION = MORE PROFITS + BETTER REPUTATION

Successful business is just arithmetic ratio. Like this—the more sales you make, the greater your profit. Or, the more you satisfy your customers, the better your reputation. Those points are mighty important items to you, aren't they? Isn't it advisable then to protect them? That is just what being an Electrol Ball Flame Oil Burner dealer does for you.

ELECTROL
the OIL BURNER with the "BALL FLAME"

Since 1918 Electrol has been making better oil burning equipment— making your job as dealer easier. Today, the Electrol Ball Flame Oil Burner stands for thousands of satisfied customers, continuous sales and profitable business. Why not join those who have made those sales? To your customer, it means years of quiet, clean, efficient heating service — performance that is high in comfort and low in operating costs. That's good for you too, isn't it?
Sell an oil burner that is different! You'll have the full assistance of the Electrol factory; of the printed materials — literature which helps you sell; display signs; advertising and promotion.
Write today. Find out how you can profit by being one of the successful Electrol dealer organization — how sales and satisfied customers will bring you more profits and better reputation. Get the facts on Electrol!

ELECTROL BURNER MANUFACTURING CO., INC.
22 UNION AVENUE, RUTHERFORD, NEW JERSEY

Demonstrator Pump

Demonstrator: Manufacturer's shallow well jet pump mounted on steel drum.

Features: Pump is designed for use in showroom displays or for demonstrating to prospective customers. Pump motor is started by automatic pressure switch, which, with the air volume control, keeps the proper amount of water and air in the 12 gal pneumatic tank. Pump is available in ¼, ⅓ and ½ hp models, for use cn either 110 or for 220 v a-c. Other demonstrating systems are available for the manufacturer's deep well pump.

Issued by: Flint and Walling Manufacturing Co., Inc., Kendallville, Ind.

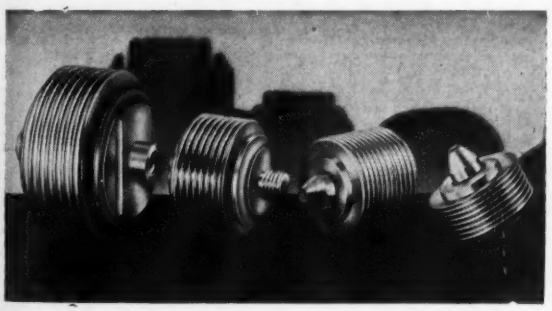
• • •

Relief Valves

Literature: Illustrated 4-page catalog in 2 colors, 8½ by 11 in., punched.

Contents: Manufacturer's safety and relief valves for chemical piping are shown. They include relief and safety valves for liquid or vapor piping of various sizes, some designed for use where leakage is not objectionable. Other models are equipped with gas tight fittings for use where any leak or discharge into the atmosphere is objectionable.

Issued by: Associated Valve and Engineering Co., 1150 West Marquette Road, Chicago 21.



HYDRON STEAM TRAP BELLOWS

Clifford's Hydron Steam Trap Bellows use only water as the thermostatic filling medium. This insures smooth, accurate thermal operation regardless of pressure changes.

Long life is inherent in Hydron Steam Trap Bellows because they are hydraulically-formed — designed to provide an adequate number of convolutions and the correct alloys and soldering materials are selected for each application.

Save steam, time, money. Write for complete details to Clifford Manufacturing Co., 565 Grove Street, Boston 27, Massachusetts. *Division of Standard-Thomson Corporation.* Offices in New York, Detroit, Chicago, Los Angeles.

CLIFFORD

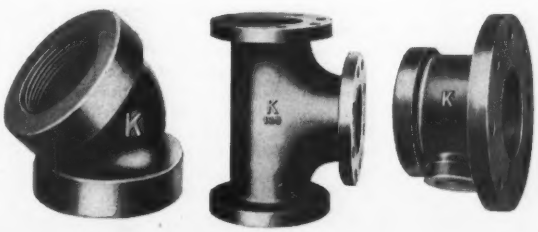
First with the Facts on Hydraulically formed Bellows **HYDRON**

"K" on a cast-iron fitting is the trademark of a company that has specialized on this type of product for more than sixty years. All of our efforts and facilities are devoted exclusively to manufacturing fittings which we can guarantee to be sound and accurate in every respect.

When you use "K" fittings, you are safeguarded against installation and service troubles. Precision machining assures quick, convenient make-up and tight joints. Accurate molding assures freedom from sand holes, cold checks, and thin walls.

These facts are verified by the experience of plumbers and steam fitters everywhere. If you are not acquainted with "K" fittings, it will pay you to get them the next time you order.

THE 3000 SHAPES AND SIZES OF "K" CAST-IRON FITTINGS INCLUDE:
STANDARD AND EXTRA HEAVY SCREWED FITTINGS
STANDARD FLANGED FITTINGS
STANDARD AND EXTRA HEAVY COMPANION FLANGES
DRAINAGE AND SPRINKLER FITTINGS



THE KUHNS BROS. CO.
DAYTON 1, OHIO
Combined Market Facilities with Malleable Iron Fittings Company, Branford, Conn., and Kuhns Bros. Co., Dayton, Ohio

for Effective Merchandising by Wholesalers & Contractors

Sell your customers the genuine "DUO Waste" now identified by an attractive two color label.

Easily recognized—Impossible to confuse with ordinary styles of continuous wastes. Look for the "DUO" label. Reg. U. S. Patent Off.

WRITE FOR "DUO WASTE" CATALOG

M.S. Little

MANUFACTURED ONLY BY
THE M. S. LITTLE MANUFACTURING CO.
HARTFORD 6, CONN., U. S. A.

Allcraft OFFERS

- INCREASED SALES for you
- GREATER PROFITS WITH

New ALLCRAFT SOLID MONEL Range Boilers

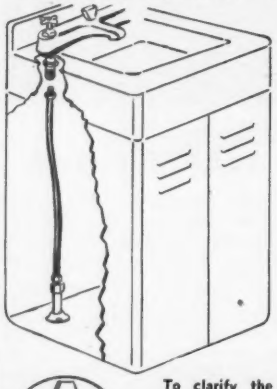
• Allcraft Range Boilers are constructed of solid Monel, with tops and bottoms heavily reinforced and welded under 1500 pounds pressure. The silver finish is simple to keep clean and acts as natural insulation against heat loss. Monel is tough, rustproof, won't flake, chip or crack, with absolutely no possibility of high temperature disintegration. Standardized Uni-tap means easy installation, either vertical or horizontal.

Allcraft, solid monel range boilers have outstanding features that help you sell—are strong, rustproof, safe, easily installed, give pure water, hotter water at lower cost and are guaranteed for 5 years. Order now!

Allcraft MANUFACTURING COMPANY, INC.
27 Hayward St., Cambridge, Mass.

ARBEST ... NO. 410 CABINET SINK-UNIT FLEXIBLE CONNECTORS

• MAKES HARD TO GET AT CORNERS EASY TO WORK IN
• ACCURATE "ROUGH IN" NOT NECESSARY
• CAN BE BENT TO ANY OFFSET



The ARBEST NO. 410 Flexible Connector is ½" O.D. annealed copper tubing, 36 inches long. Silver brazed at one end into special fitting which has ½" M.I.P. outside thread and ¼ F.I.P. internal thread. Purpose of this fitting is to permit connection to deck faucet which is either threaded or with tail piece. Other end furnished with ½" F.I.P. or ½ M.I.P. compression fitting permitting connection to either ½" iron pipe or male connector on copper tubing. Satin plated finish. Packed 1 pair to the package. Shipping wt. 2¾ lbs.

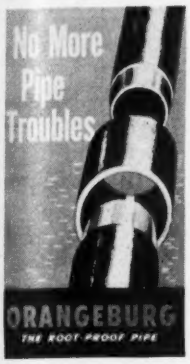
Also available in No. 411. Same as above but 18" lg.

To clarify the above detail: The ARBEST Flexible Connector is made with both male and female thread in order that it may be coupled to either the faucet tail piece by the female thread or to the faucet connection with the ½" male thread.

Write for details or order the ARBEST line from your wholesaler!

G & H MANUFACTURING CO.
3047 Amber St. Philadelphia 34, Pa.

Perforated Pipe



Literature: Folded mailing piece, 3 by 6 in.

Contents: Tar-impregnated pipe, made in 3, 4, 6 and 8 in. sizes, is used for sewer connection. Perforated sections are designed for use for septic tank disposal fields, for underground irrigation, and for foundation or field drainage purposes. Pipe sections are 8 ft long, with tapered ends fitting into sleeve couplings. Also made are bends, adapters, and fittings of various kinds, including connections to other types of soil pipe. Joints require no swabbing or wiping, and pipes are corrosion proof and root proof, manufacturer claims.

Issued by: Orangeburg Manufacturing Co., Inc., Orangeburg, N. J.

• • •

Oil-Fired Boilers

Literature: 4-page catalog in two colors, 8½ by 11 in. (No. PM3-0001)

Contents: Folder shows cross-section of the boiler-burner unit, fired by the compressed air—oil impact method of atomization. Low pressure burner nozzle is located in center of furnace, firing down into combustion chamber. Heat transfer surface is designed in correlation with the combustion rate for efficient use of all possible heat from gases within good practice, manufacturer states. Standard controls, besides thermostat, include flue pressure switch, limit and flame controls and safety shutoffs, and optional domestic hot water coil, clock type time switch, vapor limit switch, and tee for supplying floor radiation coils. Made in several sizes, rated from 75,000 to 450,000 Btu/hr output.

Issued by: General Electric, Air Conditioning Department, 5 Lawrence Street, Bloomfield, N. J.

• • •

Water Heaters

Slide Film: A 35mm film with sound recording.

Contents: Film describes features of the manufacturer's gas water heaters, and emphasizes modern production, design and research facilities of manufacturer.

Issued by: Duo-Therm Division, Motor Wheel Corporation, Lansing, Mich.

• • •

Dry Type Transformers

Literature: Sixteen-page booklet. (No. 61X7088)

Contents: Instructions for unloading, installing and placing transformer into service, with description of accessories, equipment and wiring diagrams for thermal control equipment. Includes information on switch plates and description of induced cooling.

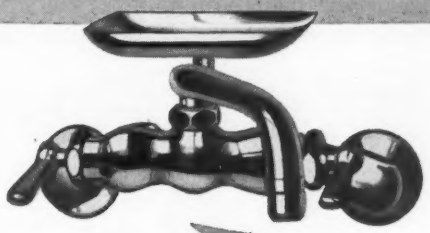
Issued by: Allis-Chalmers Mfg. Co., 1174 S. 70th Street, Milwaukee 1.

3 big features that distinguish CHICAGO FAUCETS

1. Lifetime Service. The faucet proper is not subject to any wear whatsoever. With ordinary good care Chicago Faucets will last a lifetime.

2. Easy Renewability. As quickly and easily as you change a light bulb you can renew the self-contained operating unit or any of its parts.

3. Closes with the Pressure—easily, tightly. This operating principle fights leaking and dripping at the spot where ordinary faucets are most vulnerable.



Softflo SPOUT ENDS ON KITCHEN FAUCETS

Chicago Faucets helped pioneer this idea, back in 1938. Ends all splash, saves soap, helps clarify water and banish off-tastes and odors. It's just another example of how you offer your customers the ultimate with Chicago Faucets.

THE CHICAGO FAUCET CO., Chicago 39

CHICAGO FAUCETS

Last As Long As the Building

NON CLOG SUMP PUMPS

Fig. 1

weil

"Ready and Always Able"

RELIABLE EASILY INSTALLED
EASILY MAINTAINED EASILY ADJUSTED

ELECTRIC WATER BOY

For Homes, Elevators, Scale Pits, Disposal of Seepage and Floor Drainings

Fully automatic with overall capacity of 10 to 50 GPM. Motor bearings are permanently lubricated—sealed against dirt and moisture. Motor will not interfere with radio reception.
(Write for Bulletin F501C)

DUPLEX NON-CLOG SEWAGE EJECTOR

Screenless, heavy duty, submerged type. Both pumps cut in automatically and operate as a team delivering double capacity when required.

(Ask for Bulletin C900C)

"TVC" CONDENSATION PUMP LOW RETURN CONNECTION CAST IRON RECEIVER

Low return connections provide freedom of layout. Eliminates underground lines. Overhead lines may be used.

Capacities—500 to 10,000 sq. ft. E.D.R.

(Write for Bulletin TVC 300)

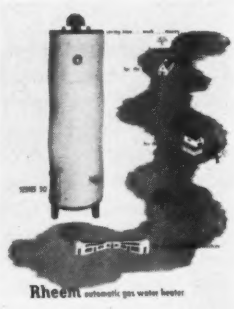
Fig. TVC 302

WEIL PUMP CO. CHICAGO ILL. U.S.A.

FOR MORE INFORMATION CONSULT YOUR WEIL REPRESENTATIVE or write

1520 North Fremont St.
Chicago 22, Illinois

Automatic Gas-Fired Water Heater



Literature: 6-page, colored booklet, 8½ by 11 in.

Contents: Booklet describes manufacturer's water heater, designed to operate on any domestic gas. Grid type stainless steel burner mixes primary air with gas. Burner can be removed through front access door. Thermostatic controls and safety shutoffs are included.

Issued by: Rheem Manufacturing Company, 11 West 42nd Street, New York City (18).

• • •

Room Temperature Control

Display: Multi-colored show room display, 28 by 17 in.

Contents: Display has a shelf for exhibit of the company's thermostatic air control for regulating room temperature in homes heated with forced warm air. Manufacturer states that unit permits regulating room temperatures to suit individual requirements and to help balance heating systems.

Issued by: The Dole Valve Co., 1933 Carroll Ave., Chicago 12.

Attention! MANUFACTURERS of AIR CONDITIONING EQUIPMENT and ACCESSORIES

You can cash in on the tremendous sales possibilities in the highly responsive and able-to-buy theatre field by advertising in the

BIG MARCH
AIR CONDITIONING ISSUE
of the

MODERN THEATRE
Section of BOXOFFICE

Not only is BOXOFFICE the most widely read trade publication in the theatre field, it is also the most thoroughly read. More than 23,000 paid subscribers—half again greater circulation than any other in the field—make this the one and only publication providing saturation coverage of both chain and independent houses.

Phone, wire or write for details.

THE MODERN THEATRE
Mechanical Maintenance Section of
BOXOFFICE

825 Van Brunt Blvd. Kansas City 1, Mo.
Phone Chestnut 7777

9 Rockefeller Plaza New York 20, N. Y.
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Electric Eel cleans sewers and drains with SAFETY

New DOUBLE CABLE protects operator. *Speedy, more efficient.* Flexible Outer Sheath for Safety

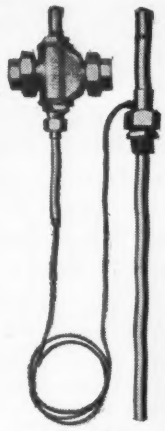
Most Powerful Machine of its Type

- *Full Electric Reverse for Rapid Withdrawal*
- *Increased Speed Through Greater R.P.M.*
- *Lighter Due to New Aluminum Frame*
- *Rotating Inner Cables*
- *Lines 1¼" to 8" Diameter*
- *Runs up to 200 Ft.*
- *Over 6,000 in Use*
- *10 Years in Production*
- *Each Tool Engineered for a Particular Purpose*

Knives and tools are available for any pipe cleaning job.

Write for more information. Dept. DE

OHIO TOOL & ENGINEERING CO., Springfield, Ohio



SARCO TR-21 operates steam, water, brine and gas valves. Entirely self-contained and self-operated. No electricity, compressed air, etc., needed. Easy to install. For any temperature between 0 and 300° F. Electric controls also available. Catalog 600.

SARCO Temperature Control

SARCO KR-14 temperature regulator is a self-operated liquid expansion type control, packless and easy to install. Used for air conditioning, refrigeration, dryers, ovens, ducts and all types of industrial process work. Temperatures 0° to 300°F. ½ to 8". Catalog 600.

211

SARCO SAVES STEAM

SARCO COMPANY, INC.
Empire State Bldg., New York 1, N.Y.
SARCO CANADA, LTD., TORONTO 5, ONTARIO

DEPENDABLE

Cast Iron
Soil Pipe
Soil Fittings
Plumbing Specialties
Grey Iron Castings

★ ★ ★ ★ Whatever you require . . . please get in touch with us.

SANITARY COMPANY OF AMERICA

Linfield, Pa.

The OATEY Aluminum

LIGHTWEIGHT - EASY TO HANDLE

ALWAYS DRY — ALWAYS LEAKPROOF

- *Drawn from single sheet of 2SO Aluminum*
- *Heavy cast lead collar*
- *21 Ga. Aluminum*
- *No Joints— No Seams*

Roof flashings of quality and complete dependability have been OATEY standards for decades.

The new OATEY Aluminum meets these specifications to a T!. Test the OATEY Aluminum now!

OATEY ROOF FLASHINGS for every pitch of roof—from flat to 45° . . . fit both standard and extra heavy pipe without buckling. No fitting or trimming of collar is necessary. There's an OATEY flashing for every roof . . . order from your jobber now!

OATEY GALVANIZED & COPPER
Base of 4" flashings, 12" x 16". All other sizes in proportion.

OATEY SENIOR (All cast lead).
Base of 4" flashings, 12" x 14". All other sizes in proportion.

L. R. OATEY CO.
10230 Berea Road
CLEVELAND, OHIO

ALDRICH HEAT-PAK

OIL BURNERS

MODEL SAX

Featuring
ALDRICH-BUILT
Motors and Transformers

These efficient, well-built burners give reliable high performance. Made to serve all firing requirements from 3/4 to 19 gph. SAX models have interchangeable draft tube assemblies covering 3 ranges. Various length draft tubes are available, also either flange or pedestal mountings. Aldrich-built motors have continuous service-rating and transformers are radio interference-free. Burners are ideal for conversion, replacement, or original equipment.

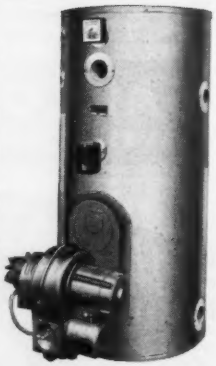
3 Models
5 Firing Ranges

Model SAX-1 (shown above) covers .75 to 1.35 gph, SAX-2 from 1.35 to 2 gph, and SAX-3 from 2 to 4.5 gph by interchange of draft tube assemblies. Model BX covers 4 to 8.50 gph and Model JU from 7 to 19 gph for larger installations.

ALDRICH HEAT-PAK

BOILER-BURNER UNITS

Featuring
BURNERS FOR OIL OR GAS
with Identical Ratings



These vertical fire-tube boilers are strongly built to highest standards of rugged welded construction. Give dependable, efficient performance on all types of steam or hot water heating systems. Six sizes cover capacities from 118,000 to 808,000 BTU per hour. Series B (shown) are oil-fired with Underwriters-approved Aldrich burners. Series BG are gas-fired with AGA-approved burners having ratings identical to corresponding oil burners. Both types of burners are on similar mounting plates for interchangeability. Efficient, high-delivery, double-spiral hot water coil available on specification. Many other outstanding features.

ALDRICH HEAT-PAK

HOT WATER SUPPLY UNITS

Featuring
FAST HEATING and LARGE DELIVERY
No Storage Tank Required

Ideal for use in residences, apartments, clubs, factories, and many commercial and industrial establishments. Same construction and features as Boiler-Burner units above, including interchangeable firing with either oil or gas. Capacities of six standard sizes range from 125 to 850 gph of water at 100 degrees rise. Complete set of automatic and safety controls furnished. Dress shell enameled beautiful Hammerloid blue with chrome trim rings. Many other features — see literature.

Write today for current literature giving complete specifications of all Aldrich products.

SOLD THROUGH JOBBERS

Aldrich products are distributed through established plumbing and heating jobbers, and are backed by an experienced sales and service organization. Investigate the value of handling the Aldrich line! Write us, so our nearest factory representative can call on you.

ONE OF THE BREEZE MARK PRODUCTS

ALDRICH COMPANY, 113 WILLIAMS ST., WYOMING, ILL.

A SUBSIDIARY OF THE BREEZE CORPORATIONS, INC.

Stainless Steel Sinks

Literature: 8½ by 11 in. illustrated 8-page folder in color.

Contents: A 4-point plan to sell more sinks and produce plus-profit for dealers is described. Plan includes the use of selling manual, display cards, newspaper mats, envelope stuffers, radio commercials, sales training plan, and authorized dealer sign. Also included is an offer of one-half price on an illuminated sign, engraved in lucite, complete with aluminum base, flourescent lamp and cord.

Issued by: Elkay Manufacturing Company, 1874 South 54th Ave., Chicago 50.

• • •

Controlling Temperature

Literature: Illustrated 8-page catalog in color, 8½ by 11 in. (Cat. R-10).

Contents: Detailed engineering and application data concerning manufacturer's automatic temperature control systems and instrument panels are shown. Schematic sketches illustrate applications to basic processing and measurements of numerous variables such as density, flow, weight, etc. Measurements are electrically transmitted and recorded, if desired.

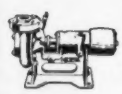
Issued by: Automatic Temperature Control Co., Inc., 5212 Pulaski Ave., Philadelphia 44.

how to make friends and guarantee profits!
JUST HOW MUCH EXTRA WILL IT COST ME IF YOU USE THAT MACHINE?
LADY... THIS "FLEXI-CLEANER" IS YOUR FRIEND... IT'LL TAKE LONGER AND COST A LOT MORE IF I HAVE TO USE HAND TOOLS!
"FLEXI-CLEANER"
Cuts work time—Pays its way on the toughest sewer line stoppages.
Half H.P. A.C. D.C. Reversible.
Automatic grip jaws. Safe in use.
FLEXIBLE SEWER-ROD EQUIPMENT CO.
Plumbing Division
9059 VENICE BOULEVARD LOS ANGELES 34, CALIFORNIA
FRANK DONOVAN COMPANY, 9 S. CLINTON STREET CHICAGO 6, ILLINOIS
401 BROADWAY, NEW YORK, N. Y.

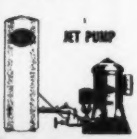
NOW — Get Ready To Go with DEMPSTER WATER SUPPLY EQUIPMENT

DEMPSTER PRODUCTS

Windmills, Pumps and Cylinders, Tanks, Pump Jacks, Irrigation Equipment, Shallow Well, Deep Well and Ejector Water Systems, Pipe-Fittings, Plumbing Supplies



CENTRIFUGAL PUMPS



JET PUMP

SHALLOW WELL PUMP

DEEP WELL PUMP

DNT-2-48

Write for FRANCHISE INFORMATION

NOW IS THE TIME . . . to prepare for increased Dempster Water Supply Equipment sales that can come your way. The COMPLETE Dempster line is now becoming available for you to sell. Don't waste any time getting at the "ready-made market" which awaits you.

Write for information concerning our Dealer Franchise Plan. A franchise for your territory may be available.

DEMPSTER MILL MFG. CO. BEATRICE NEBRASKA

IT'S ABOUT "Dew"!

THE ECONOMY BUY

In Automatic Water Softeners

Yes! It's about time that the "Dew", a good, dependable, economically operated water softener, was being installed in every possible home in your community. For here is the practical home water softener that your customers have needed.

With over six years of progressive and successful craftmanship in the water softener field, DEW has come through with the softener that has no messy, unsanitary brine tank . . . no complicated valve or pipe arrangements. Only three minutes required to regenerate. The "Dew" gives an endless flow of soft water at little cost. Saves time, saves clothes, saves soap, saves money. Write DEW today!

AS EASY TO OPERATE AS A WASHING MACHINE

SET IT AND FORGET IT!

DEW WATER SOFTENER COMPANY
434 S. LaSalle Ave. South Bend 17, Ind.

For your PROTECTION

APPROVED BY QUALITY TESTED STEEL KITCHEN CABINET INSTITUTE COPYRIGHTED 1948

1. QUALITY TESTED This seal on a Kitchen Cabinet means that cabinets bearing this seal have met rigid tests in an *independent testing laboratory.*

2. AVAILABLE These tests are available to all manufacturers of steel kitchen cabinets. NO MANUFACTURER IS EXCLUDED.

3. CUSTOMER APPEAL This seal means that you can be assured that steel cabinets that carry it will give long years of trouble-free service.

4. FOR YOUR PROTECTION Due to *11 tests* for mechanical fitness, *10 tests* for finish . . . cabinets bearing this seal have been BUILT UP to a standard . . . NOT DOWN to a price!

. . . for additional information — WRITE

APPROVED BY QUALITY TESTED STEEL KITCHEN CABINET INSTITUTE

STEEL KITCHEN CABINET INSTITUTE
140 PUBLIC SQUARE • CLEVELAND 14, OHIO
DEPT. D

Season's Greetings

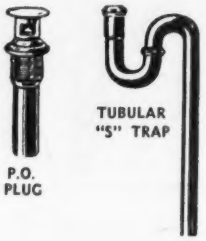
THANKS FOR YOUR ORDERS!

They have made us what we are today . . . a leader in tubular brass goods. In a swing from coast to coast in the past few weeks we found old customers sold on IDEAL Tubular. We found new customers were placing orders with us because they have heard favorably about IDEAL Products and IDEAL Service.

So, as 1949 gets under way we want to say thanks to our many old and new customers.

Due to the volume of business we have received, we are expanding our facilities to give you even better quality and service.

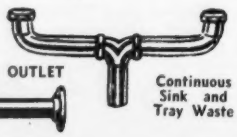
DUO STRAINER



P.O. PLUG — TUBULAR "S" TRAP

END OUTLET Continuous Sink and Tray Waste

TUBULAR "P" TRAP



CENTER OUTLET — Continuous Sink and Tray Waste

FLUSH ELL

What IDEAL Makes is "IDEAL"

Ideal TUBULAR CORPORATION
197 NINTH STREET BROOKLYN, NEW YORK

Detroit TANK CLOSET Floats

by America's Largest Manufacturer of Tank Closet Floats

YOUR ASSURANCE OF CUSTOMER SATISFACTION

"Detroit" Floats are guaranteed against leakage and built for longer wear. Their lighter weight insures greater buoyancy. The flush-set spud permits insertion in smallest space. YOUR JOBBER stocks "Detroit" Floats.

FLOATS FOR EVERY PURPOSE

We manufacture floats in all sizes from 1½" x ½" to 5" x 7½". Write for information and prices.

Detroit Float AND STAMPING CORP.
SUCCESSOR TO DETROIT METAL SPINNING CO. ESTABLISHED 1902
625 MONROE AVE. DETROIT 26, MICH.

SEE— for yourself

How a fast-running repair job is done in an old hotel

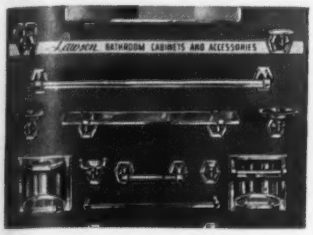
You can do *more work* every day when you bend pipe with a

TAL Portable Bender

Work goes faster when you bend on the job — either original installation, radiant heat or repair. Fewer joints to leak in the future, less friction, more satisfaction for your customers and a bigger profit for you. Do as hundreds everywhere are already doing. Write for illustrated data bulletin. Dept. 11.

Tal Bender, Inc. Milwaukee 2, Wisconsin

Bathroom Accessory Display



Sales Aid: Easel-type display stand for showrooms.

Features: Display is 32 in. wide and 61 in. high, with 12 in. legs. Panel is finished in dark blue, with white lettering. Manufacturer's bathroom cabinets with attached lights can be mounted for display, along with other bathroom accessories, including soap dishes, towel bars, paper holders, robe hooks, etc. Also offered are four other panels, displaying accessories only.

Issued by: F. H. Lawson Co., Bathroom Cabinet Div., 804 Evans St., Cincinnati 4.

• • •

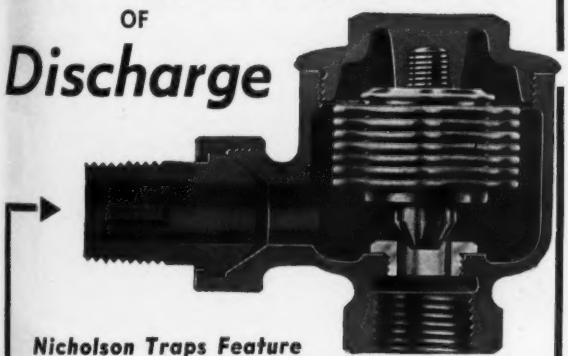
Electric Motors

Literature: Twenty-eight-page illustrated bulletin. (No. 05B-6107A)

Contents: Motors for driving power house auxiliaries gives data on types and characteristics of manufacturer's induction motors and construction details of standard open type motors. It contains a selection chart of motors for operating boiler feed, condenser circulating water and condensate pumps, coal pulverizers, pulverizer exhausters, induced, forced-draft and cooling tower fans, ash sluices and coal hoists.

Issued by: Allis-Chalmers Mfg. Co., 1174 S. 70th St., Milwaukee 1.

TRY THIS FOR SIZE
OF
Discharge



Nicholson Traps Feature
Larger Valve Orifice, Faster Action

Tests on installations of these new Nicholson radiator traps show that their larger valve orifice, special bellows, and patented vapor-pressure principle speed action, cut-heat-up time and fuel consumption. Maintenance men report they effect constant radiator action with less attention. Size, ½" and ¾"; vapor and vacuum; pressures to 15 lbs. Competitively priced. Put some on test.

Bulletin 744

W. H. NICHOLSON & CO. 190 OREGON ST. WILKES-BARRE, PA.

Valves ★ Traps ★ Steam Specialties

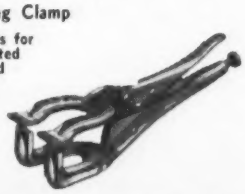
WORLD'S MOST VERSATILE HAND TOOL!

Does jobs no other tool can do. Double-lever action LOCKS jaws with tremendous grip—quickly adjusts to non-locking action. *New Involute Curve* holds all shapes —nuts, rounds, irregular shapes, with unbelievable ease. Has *Knurled JawTips* that do not slip. *Thin Nose. Super Wire-Cutter. New Geometry* gives more power—easier opening. Fine alloy steel. Nickel plated finish.

With Cutter—	No. 7W—7",	$2.25
	No. 10W—10",	2.50
Without Cutter—	No. 7C—7",	1.85
	No. 10C—10",	2.25

VISE-GRIP Welding Clamp

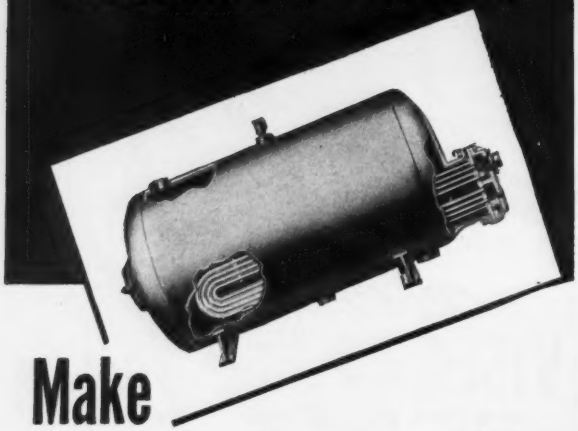
LOCKS parts in alignment, freeing both hands for handling welding equipment. Deep-throated U-shaped jaws provide perfect visiblity and working space. Quick jaw-adjustment to 1⅝". 9" long. Only $2.95.



If not at your dealers, order direct. Postage paid if price accompanies order.

PETERSEN MFG. CO., Dept. DE-1, DeWitt, Nebr.

PATTERSON-KELLEY
HOT WATER
STORAGE HEATERS



Make it a "Copper-Lined" Heater and Save Money

We can and do manufacture hot water storage heaters of **all** commercially used metals. We make them of both ferrous and non-ferrous solid metals. But more and more the trend with our customers is towards copper-lined heaters.

The copper-lined heater offers just as much corrosion resistance or rust-prevention as solid copper or copper silicon. It is made to the same strength requirements and with the same factors of safety. **But it provides economy of construction** not possible with the solid non-corroding metals.

On your next hot water storage heater job, ask us about our copper-lined heaters. We'll be glad to quote on your specifications but do suggest you inquire of the "lined" heater as an alternate.

EST. 1880
THE PATTERSON-KELLEY Company, Inc.
132 WARREN STREET, EAST STROUDSBURG, PA.
New York Office: 101 Park Avenue, Zone 17
Offices or Representatives in Principal Cities

Kitchen Faucet Display

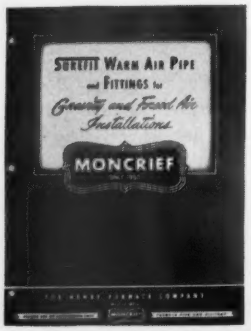
Sales Aid: Showroom display for kitchen sink faucets, 13½ by 20 in.

Features: Displays are made of wood and pressed wood, enameled in blue and yellow or in burgundy red and yellow. Manufacturer's wall type or ledge type faucets are mounted to simulate actual installations, with a pocket provided to hold descriptive literature. Can be placed on showroom counters or shelves, or in window displays.

Issued by: Price-Pfister Brass Manufacturing Co., 3011 Humboldt Street, Los Angeles 31.

● ● ●

Furnace Pipe and Fittings



Literature: 16-page, illustrated, 2-color catalog. (No. 20)

Contents: Descriptions of various sizes in a broad range of gravity and forced air pipes and fittings are included. The pipes are die stamped and machine made for easy fitting, the manufacturers states. Data for sizing pipes is included.

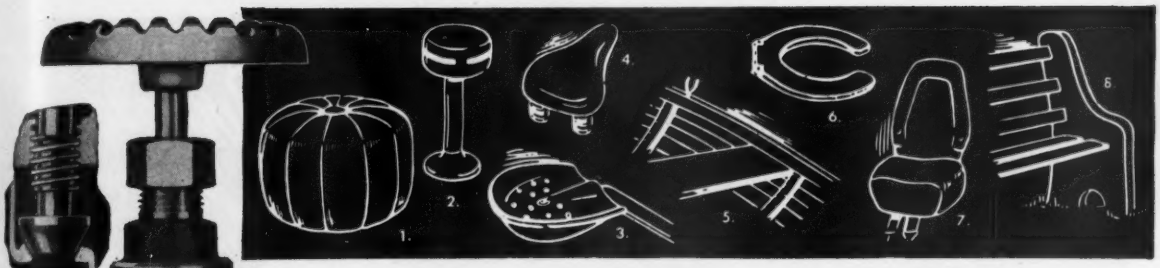
Issued by: Henry Furnace Company, Medina, Ohio.

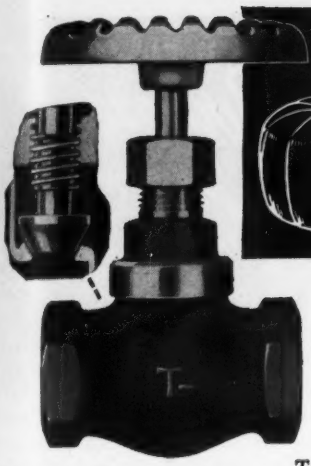
★ EASY TO CLEAN
★ EASY TO INSTALL
★ SIMPLE DESIGN
★ NO MOVING PARTS
★ NO PARTS TO REPLACE

Offer your customers the utmost in performance. MURCO Grease Traps with truly tested designs for dependable performance have proven their efficiency and all claims made for them during the years of actual service for all types of commercial, public and institution installations. MURCO is the original grease trap with high efficiency rating—rated on the basis of rigid tests made by independent laboratories—not our factory tests. In MURCO Grease Traps are certain exclusive features fully protected by patents that contribute to their high efficiency and dependable performance . . . they're easy to install . . . require no cold water connections . . . once installed they will render efficient service indefinitely as there are no moving parts to be replaced or get out of order.

COMPLETE CATALOG ON REQUEST

D. J. MURRAY MANUFACTURING CO. WAUSAU WIS



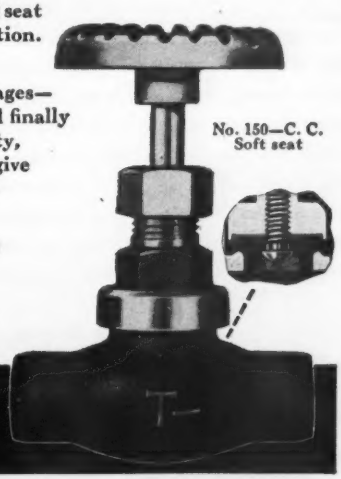


No. 400—I. P. Hard Seat

HOW MUCH DO YOU KNOW ABOUT SEATS?

It's easy to judge the quality of the seats pictured above before purchasing; but choosing a valve with a good seat means depending upon a brand famous for satisfaction.

Tanner triple-tested valves can be relied upon for successful operation and long life. Tanner valves are tested in three stages—first-as a rough casting, second—in the machined body stage, and finally the highly important seat test. That's why you can install these quality, popularly-priced valves with complete assurance that they will give a maximum of satisfaction. *Write today for colorful literature, "Valve Values" by Tanner.*



No. 150—C. C. Soft seat

1. Ottoman or Upholstered Seat 2. Restaurant Seat 3. Farm Implement Seat
4. Bicycle Seat 5. Rowboat Seat 6. Picture Frame
7. Parachute Seat 8. Lawn or Park Seat

"The Seat of the Elite - in Valves"

TANNER VALVES

TANNER MFG. COMPANY ERIE, PA., U. S. A.

SELL **Radiant** OIL BURNERS

PROFIT
100,000 highly satisfactory installations *plus* constantly increasing contractor demand mean *more sales for you.*

QUALITY
Highest commercial standard underwriters' and F.H.A. specifications. All parts meet rigid inspection and exacting factory tests.

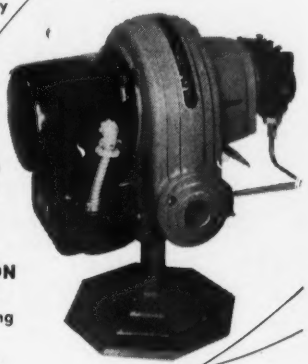
ECONOMY
Burns catalytic oils *completely.*

RANGE OF INSTALLATION
¾ gal. to 20 gal. capacity.

Build your automatic heating business on a sound basis!

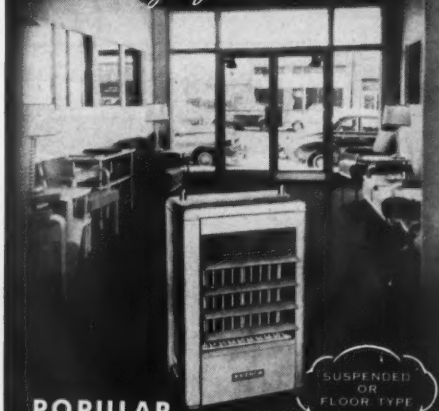
Write *today* for full details on this outstanding, profitable oil burner.

NOTE: Several territories available



RADIANT UTILITIES CORP.
Brooklyn 14, N. Y.

Automatic **REZNOR** *gas fired unit heaters*

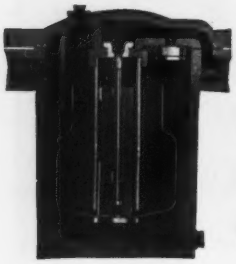


SUSPENDED OR FLOOR TYPE

POPULAR

For industrial plants
For offices and stores
More sold than any other
Made since 1888
Catalog shows special features. Write today.

REZNOR MANUFACTURING CO.
5 UNION ST. · MERCER, PENNA.



ILLINOIS STEAM TRAP

Simple—has only two moving parts

Valve Stem Travels Independent of Bucket—no other trap has this feature.

Instantaneous Valve Action—either wide open or tight shut—will not dribble on partial closing of valve under slow condensation rates.

Wire Drawing Impossible—valve has snap action.

Simple—moving parts are valve and bucket.

Cannot Air Bind—vents air continuously without loss of steam.

Cannot Blow Steam—always water sealed.

Surface Discharge—flushes out all grease and sludge.

Valve Seat—of special alloy, fully guaranteed.

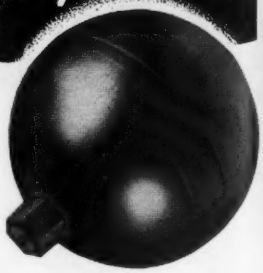
Inspection Easy—without disturbing piping.

Works Equally Well on All Fluids—compressed air lines, air separators, air aftercoolers.

Write for Bulletin 35

ILLINOIS ENGINEERING COMPANY
INCORPORATED 1900
RACINE AVENUE AT 21ST STREET • CHICAGO 8

INDUSTRIAL TYPE FLOATS *For Every Purpose*



- STAINLESS STEEL
- SEAMLESS COPPER
- MONEL
- STEEL
- NICKEL

Wherever high quality industrial* floats are required—in steam traps, pumps, float valves, etc.—Chicago Float Works, manufacturers of fine floats for 33 years can supply them, either from our complete line of standard sizes, shapes and spud connections, or as special items made up to meet your requirements. Standard diameters from 2 to 12 inches. Prompt delivery—many standard float sizes can be shipped from stock.

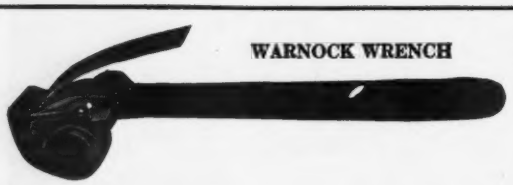
Give your customers the benefit of the best—precision engineered and manufactured floats from Chicago Float Works.

WRITE TODAY for complete catalog

*Not for closet tanks

CHICAGO FLOAT WORKS, INC.
2324 S. Western Ave., Chicago 8, Illinois

PROTECT the FINISH of FINISHED PIPE!

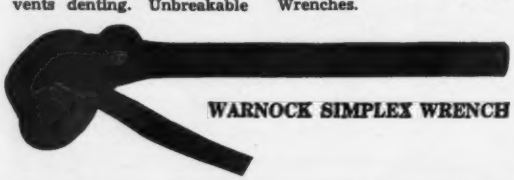


WARNOCK WRENCH

SMOOTH piping needs greatest protection against injury during threading and installation! This type of work calls for a WARNOCK Strap Wrench . . . the wrench that takes a sure but gentle grip on pipe. Flexible Woven Strap provides a soft contact yet has a tensile strength of 2,000 lbs. Curving nose prevents denting. Unbreakable handles are finished in enamel.

Obtain the WARNOCK Wrench if you have a volume of smooth piping work or the WARNOCK Simplex Wrench if you have infrequent use for a strap wrench.

Place an order today with your wholesaler for one or several WARNOCK Strap Wrenches.



WARNOCK SIMPLEX WRENCH

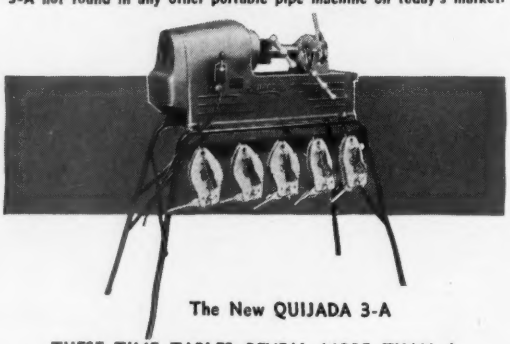
LOWELL WRENCH COMPANY, Worcester, Mass.

AUTOMATIC

QUIJADA

SAY "KEE-HAH-DAH"

Why not find out now about the 10 main features of the Quijada 3-A not found in any other portable pipe machine on today's market.



The New QUIJADA 3-A

THESE TIME TABLES REVEAL MORE THAN A THOUSAND WORDS CAN TELL:

Pipe Size	Threading Time	Reaming Time	Cut Off Time
½"	8 Sec.		5 Sec.
¾"	10 Sec.		6 Sec.
1"	15 Sec.	You ream as you thread—no time lost.	7 Sec.
1¼"	16 Sec.		8 Sec.
1½"	17 Sec.		9 Sec.
2"	19 Sec.		10 Sec.

REMEMBER: Chucking up takes but the time to "flip" the switch to forward position.

SPEED AND ACCURACY GUARANTEED

Ask Your Jobber or Write for Catalog

QUIJADA TOOL COMPANY, INC.
5474 Alhambra Ave.
Export and Cable address: "C.I.S.C.O."
319 Ea. 4th St., Los Angeles 13, Calif.

Safety and Relief Valves

Literature: 72-page illustrated catalog. (No. 48)

Contents: Catalog and data book incorporates a detailed description of safety and relief valves for general use, as well as for chemical corrosion resistant use. Comparison and selection charts give a key to the proper valve for each type of service. Included are capacity tables which give water, air and steam capacities for various nozzle orifice sizes and a tight vapor sizing chart.

Issued by: Farris Engineering Corporation, 492 Commercial Avenue, Palisades Park, N. J.

● ● ●

Colored Toilet Seats

Literature: Illustrated 16-page catalog with color chips, 5½ by 8½ in.

Contents: Manufacturer's mother of pearl covered toilet seats, toilet tank lids and bath stools are shown and described. Color chips of 18 assorted pastel and dark colors are of the actual covering material. Six styles of seats, made of hardwood or of molded wood, are offered. Hinges are of chrome plated brass. Seat display rack also is shown.

Issued by: Silkauf Products of California, 1745 E. Slauson Ave., Los Angeles 11.

● ● ●

High Pressure Return

Literature: Illustrated catalog sheet in color.

Contents: Manufacturer's high pressure condensate return system is shown. It is designed for pressures up to 250 psi (or higher) for commercial use.

Issued by: Cochrane Corporation, 17th St. and Allegheny Ave., Philadelphia 32.

● ● ●

Adhesives

Literature: Catalog section, 6 pages, 8½ by 11 in.

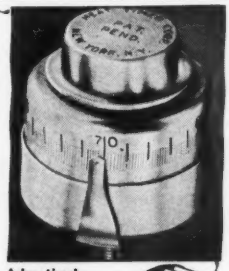
Contents: Various types of rubber cements and adhesives ranging in strength from a temporary bond to a weld capable of withstanding shear stresses of 3250 psi are listed.

Issued by: B. F. Goodrich, Akron, Ohio.

SAVE FUEL!
HEAT-TIMER
Thermostatic
RADIATOR AIR VALVE

Automatically Controls Heat of Any Room Individually at Most Comfortable Temperature

Replaces ordinary air valve. Radiator heats only when temperature drops below valve setting and shuts off vent when setting is again raeched. Can be used in any one-pipe steam system.



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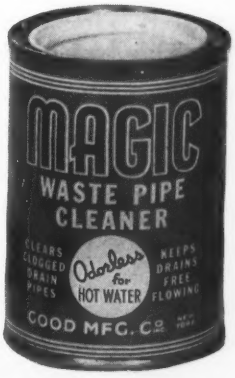
"Good" Magic Waste Pipe Cleaner clears pipes fast and keeps them open.



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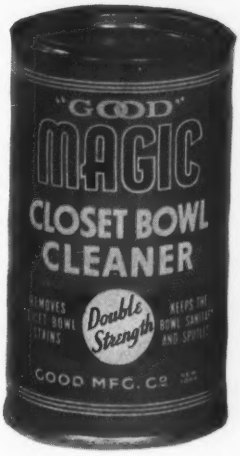

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Pressure Reducing Valves

Literature: 10-page illustrated bulletin. (Bulletin 265)

Contents: Recommendations covering installations and capacity charts for water, air, and steam are included. The bulletin furnishes information on a single seated, direct acting valve. The manufacturer states that this valve automatically reduces a higher pressure to a lower pressure, maintaining that lower pressure constant regardless of fluctuations in the high pressure side of the line.

Issued by: A. W. Cash Valve Manufacturing Corp., Decatur, Ill.

• • •

Gas-Fired Warm Air Furnace

Literature: Illustrated 4-page, 8½ by 11 in catalog.

Contents: Manufacturer's cast iron heating unit described is shipped completely assembled. Heat transfer section with high characteristics permit a compact unit in which little heat is stored, manufacturer states. Clean and efficient combustion is accomplished by raised port atmospheric burners, the manufacturer claims. Thermostatically controlled burner has safety shutoff. Fan is started only when air is warm. Humidifier is available.

Issued by: General Electric, Air Conditioning Dept., Bloomfield, N. J.

• • •

Water Demineralizer

Literature: Illustrated 26-page booklet in 3 colors, revised edition, 8½ by 11 in.

Contents: Booklet describes briefly the chemical and mechanical principals of demineralization by ion exchange, and gives data on calculating costs for demineralizing various raw waters. Substitution of demineralized water for distilled water for various uses is discussed.

Issued by: American Cyanamid Company, Ion Exchange Product Dept., 30 Rockefeller Plaza, New York City (20).

• • •

Sewage Treatment Instruments

Literature: 43-page illustrated catalog, punched. (Bulletin No. 7301).

Contents: The catalog presents necessary instruments and their applications with clear schematic diagrams for indicating, recording, and/or controlling flow, temperature, level, pressure and pH of sewage flow.

Issued by: The Brown Instrument Company, Division of Minneapolis-Honeywell Regulator Company, Philadelphia 44.

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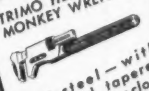

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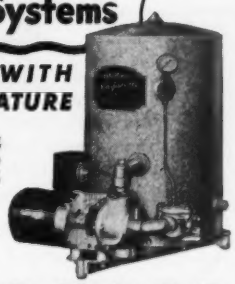

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that will give you details on individual dispensers or centralized systems for buildings of all types.

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Write for Bulletin 199 ROCK ISLAND, ILLINOIS

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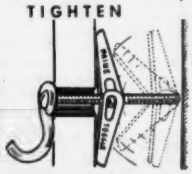

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FASTENING and HANGING DEVICES

2955 W. Carroll Avenue Chicago 12, Illinois

Reviewing New Books

Construction Methods

Literature: Illustrated 12-page instruction bulletin, 8½ by 11 in., punched. (No. E2.1)

Contents: Labor and material saving methods of constructing frame homes are briefly explained, with emphasis on well planned workmanship and pre-assembly of parts where possible. Savings in plumbing installation are possible, the booklet states, when interior partitions are erected last so that the plumber can install pipes without cutting through or working around wall studs, and if an accurate plumbing layout is prepared before work on the house is started. Savings in material are possible if kitchen and bathroom are placed back to back against a plumbing wall and basement laundry fixtures are located under the kitchen.

Similar savings can be effected in installing the heating system.

Issued by: Small Homes Council, Mumford House, University of Illinois, Urbana, Ill.

● ● ●

100th Anniversary

Book: Commemorative issue in color, 9 by 12 in., bound.

Contents: History of the company for past 100 years in making machine tools, including drills, reamers, and punches, is shown in text and color illustrations.

Issued by: Whitman and Barnes, West Fort and 14th St., Detroit 16.

● ● ●

Smoke

Literature: 306-page bound volume, 5½ by 9 in.

Author: Arnold Marsh.

Contents: The history of coal smoke abatement in England for the past 100 years is traced, including a period during the World War II in which factory smoke was not discouraged on the theory that it helped screen plants from German bombers. Costs of smoke because of air pollution and destruction of property are taken up, with some attention paid to the problem in the United States and other countries. Much of the book is concerned with the practices of the abatement of smoke, both industrial and domestic, including smoke abatement

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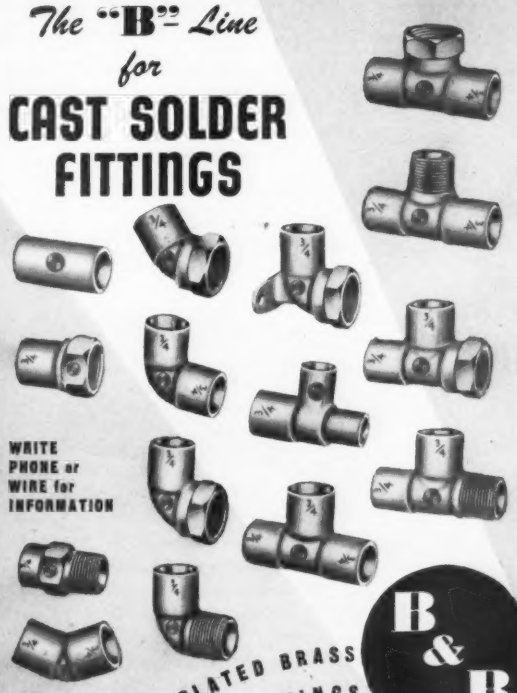
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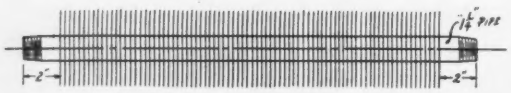

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Introducing the
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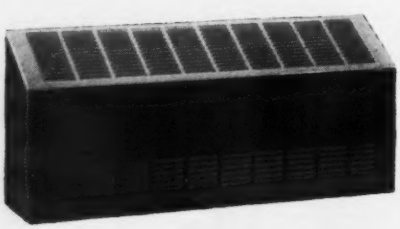

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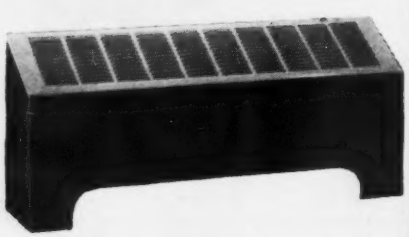

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regulations and the practical problems of combustion.

Price: $7.00.

Issued by: The Sherwood Press, P.O. Box 566, Pacoima, Los Angeles County, Calif.

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Thermal Insulation

Literature: Illustrated 32-page manual, 8½ by 11 in. (A.I.A. File No. 37-B-4).

Contents: Simplified physics of thermal insulation contains a discussion of heat transfer, condensation, vermin, mold, fire, radiant panel heat, and other factors involved in the study of insulation and insulating values. Although it treats the subjects completely, the booklet is written simply and technical subjects have been treated in a non-technical manner. Types of insulating materials, including mass fibrous and reflective types, are discussed. A chart gives thermal insulation values of many insulating materials including manufacturer's accordion type aluminum reflective insulation. Results of laboratory tests are shown.

Issued by: Infra Insulation, Inc., 10 Murray St., New York City.

• • •

Guide to Safety

Booklet: Your Guide to Safety in the Plumbing, Heating, and Ventilating Trades, 16-page booklet, 3½ by 5 in.

Contents: Booklet, furnished by insurance company, is written to help the mechanic use safe practices in his work, his use of tools, his actions on ladders and scaffolding and in tanks, trenches or other hazardous places, and in storage of materials, etc.

Issued by: Accident Prevention Department, Association of Casualty and Surety Companies, 60 John St., New York City (7).

• • •

Refrigeration, Air Conditioning

Book: 512-page textbook and refrigeration handbook, 6 by 9 in.

Author: Richard C. Jordan and Gayle B. Priester.

Contents: The book was written as a basis for a comprehensive course in refrigeration and air conditioning. Opening chapters take up the history and theory of refrigeration, the various basic types of equipment used for cooling, and details the advantages and limitations of each.

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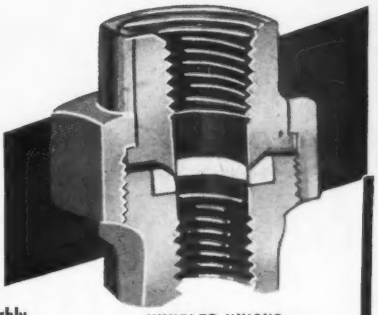

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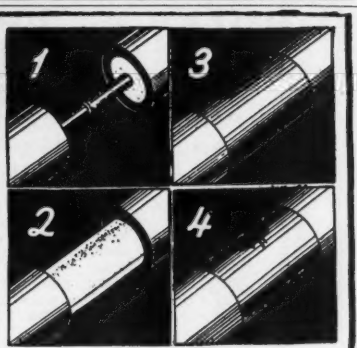

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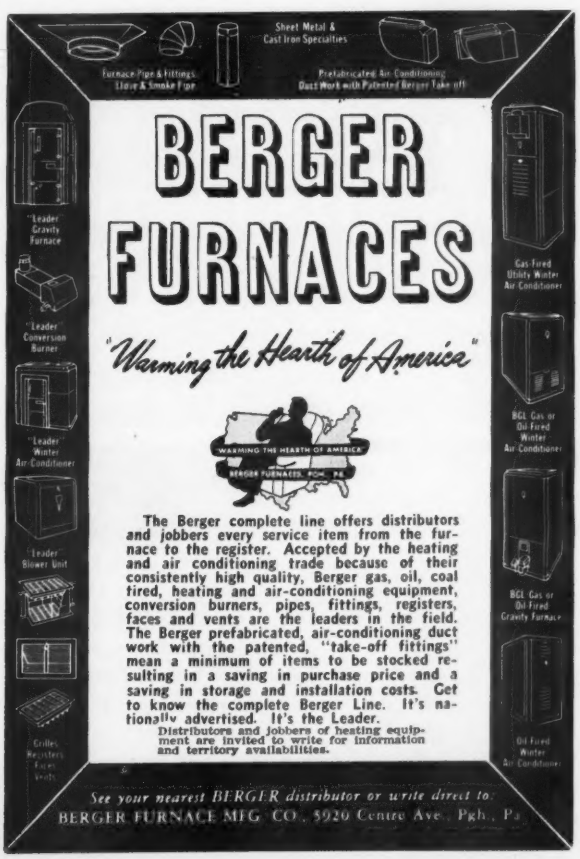
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The Berger complete line offers distributors and jobbers every service item from the furnace to the register. Accepted by the heating and air conditioning trade because of their consistently high quality, Berger gas, oil, coal fired, heating and air-conditioning equipment, conversion burners, pipes, fittings, registers, faces and vents are the leaders in the field. The Berger prefabricated, air-conditioning duct work with the patented, "take-off fittings" mean a minimum of items to be stocked resulting in a saving in purchase price and a saving in storage and installation costs. Get to know the complete Berger Line. It's nationally advertised. It's the Leader.

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8442 Tinicum Ave., Philadelphia 42, Pa.

Concluding chapters take up the application to refrigeration, food preservation, and air conditioning.

Price: $7.75.

Publisher: Prentice-Hall, 70 Fifth Ave., New York City (11).

Steam Jet Refrigeration

(Continued from page 139)

Operating on this principle, the steam jet refrigeration unit "boils" or evaporates a small portion of the water at an artificially low pressure, or partial vacuum. In so doing, the evaporated water carries away with it heat from the remaining unevaporated water, to provide very rapid cooling.

Roughly, a hundred times as much heat is required to convert a pound of water into steam as is given up by a pound of water in being cooled ten degrees. For that reason, only a very small fraction of the warm water entering the evaporator can, by flashing into steam, provide the refrigerating effect for cooling the remainder.

Vacuum Flash Chamber

In actual operation, the water to be cooled is pumped into a closed vessel called a flash chamber, which is maintained under a vacuum. Part of the water is instantly evaporated due to the low pressure, and the vapor is swept out of the vessel by high velocity steam jets.

This steam jet looses some heat, which discounts to a slight degree the cooling effect of the evaporation, but by the immediate removal of the vapor (evaporated water) the vacuum is maintained and more water can

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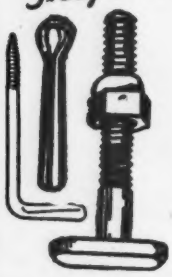

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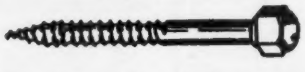
It's wise to supply yourself with an ample supply of HINDLEY'S Plumber's Specialties! Prepare for every job that comes your way. You'll find HINDLEY'S Plumber's Specialties indispensable and handy in all emergencies. Contact Your Local Jobber Today.



HINDLEY MFG. CO., Valley Falls, R. I.

National Distributing Co.
110-B West 17th St., New York 11, N. Y.

USE NATIONAL
CATALOG FOR QUALITY
PLUMBING & HEATING SPECIALTIES

National Distributing Co.
110-B West 17th St., New York 11, N. Y.

then be evaporated.

Thus, cold water can be constantly drawn off, while warm makeup water is added.

Ejectors and Condensers

The vacuum is produced by a combination of the steam jet ejectors and condensers with barometric water legs, which exert a hydraulic pull on the system.

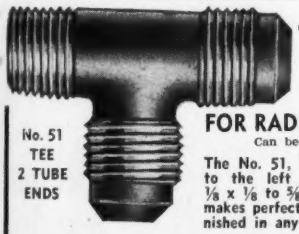
The jet unit at the Ethyl plant consists of a cylindrical flash chamber of 50 ft long and 12 ft in diameter. The 25 million gals of water that pass through it daily are chilled by the flow of 2½ million pounds of steam through the ejectors. Heat is removed from the water at a rate which would freeze 8 million lbs of ice daily. The refrigeration operation is simple, and has no moving parts.

Steam jet refrigeration, while not a new development, has come into prominence only recently. It is being used increasingly for manufacturing and air conditioning uses where large quantities of chilled water is required. Unlike refrigeration systems using chemical agents, steam jet refrigeration is intended to supply water that is cool, yet is several deg above the freezing point, 32 deg.

Water Is Reused Many Times

The Ethyl installation cost more than $500,000, and uses both well water and water pumped from the Mississippi River nearby. The river water is processed in a separate purification plant before it is used. An interesting by-product is 45 tons of sediment daily, used to fill a nearby bayou.

The water is reused over and over again, and huge fan-ventilated cooling towers are used for removing heat from water that does not require chilling.



Flare Tube Fittings

FOR RADIANT PANEL HEATING

Can be used with L.P. Gas and for refrigeration purposes.

The No. 51, I.P.S. TEE (2 Tube Ends) shown to the left is available in 11 tube sizes, ⅛ x ⅛ to ⅝ x ½. Accurate, clean threading makes perfect union with piping. Can be furnished in any other combination.

The No. 49, I.P.S. MALE ELBOW is available in 14 tube sizes, ⅛ x ⅛ to ¾ x ½. American fittings help your customers get the most out of radiant heating piping.

No. 49
MALE ELBOW
ORDER FROM YOUR JOBBER . . . or write direct for price list.

American Manufacturing Co.
INCORPORATED
7 Jewel Court Hartford, Conn.

THE LINE FOR '49 — Zerosoft

Zerosoft Challenger model with brine tank for dependable operation.

ZERO WATER SOFTENER MFG. CO.
4985 ELSTON AVE.
CHICAGO 30 ILL.

SECURITY
STANDS OUT WITH
CARTY-MOORE
No. 44 Concrete Inserts

Not only strong in themselves but designed to hold securely into the concrete bed of building construction, CARTY-MOORE concrete inserts provide lasting dependability. The wide wing spread that's a CARTY-MOORE feature allows a deep, lasting insertion in concrete . . . the travel slot permits wide adjustment—prevents the nut from pulling out.

AVAILABLE IMMEDIATELY in sizes for ⅜", ½", ⅝" and ¾" nuts. ORDER FROM YOUR JOBBER!

CARTY & MOORE ENGINEERING CO.
511 W. Larned St. Detroit 26, Mich.

PLUMBING BRASS GOODS

ROCKFORD 18 90 BRASS WORKS

Valves...Ground Key Work... and the Duck-Bill No-Tone Ballcock

ROCKFORD BRASS WORKS
ROCKFORD, ILLINOIS

Less Selling Effort Needed
WHEN YOU RECOMMEND
KAINER
HEATING SPECIALTIES

The Standard of
QUALITY
for over 30 years

There's always less selling effort needed when you sell KAINER... the name that for over 30 years has signified the best in heating specialties.

New folder on Governors sent upon request.

KAINER & CO: 761 LEXINGTON STREET CHICAGO 7, ILLINOIS

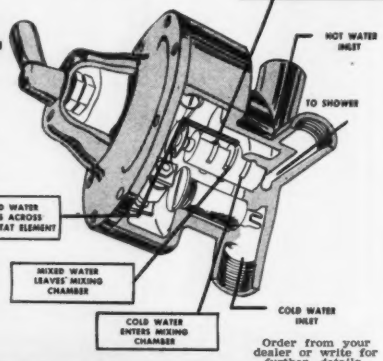
The DORAN

Safe-T-Shower

Mixing Valve

CONTROLS both TEMPERATURE AND PRESSURE

The DORAN assures your customers safe, dependable shower temperature and pressure year after year because of the DORAN's mechanical precision and sturdy construction.
Notice the unique engineering principle of the DORAN Safe-T-Shower in the cross-section below.


HOT WATER ENTERS MIXING CHAMBER
HOT WATER INLET
TO SHOWER
MIXED WATER FLOWS ACROSS THERMOSTAT ELEMENT
MIXED WATER LEAVES MIXING CHAMBER
COLD WATER ENTERS MIXING CHAMBER
COLD WATER INLET

Safeguards Your Customers Against Scalding

Concealed as well as exposed models. Concealed types have octagonal or round escutcheons (chrome plated)

Order from your dealer or write for further details.

Cunningham Manufacturing Company
4200 W. MARGINAL WAY SEATTLE 6, WASHINGTON

Full Fashioned!

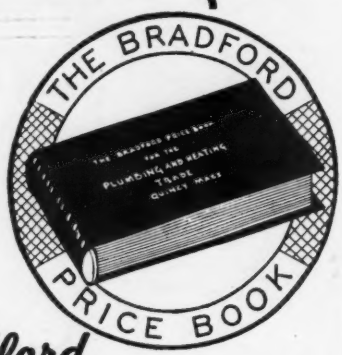
Added value features give Temple Seats instant consumer acceptance and lasting satisfaction. Full fashioned from close textured 1¼" kiln-dried hardwood. Guaranteed white enamel finish. Handsome hardware. Individually cartoned.

Temple SEATS

SOLD EXCLUSIVELY BY PLUMBING JOBBERS

SEAT DIVISION, Temple Lumber Co., Pineland, Texas, U.S.A.

- IN ESTIMATING
- IN BUYING
- IN SELLING
- IN BILLING
- IN CHECKING INVOICES



Let Bradford be Your Guide!

In making a practice of referring to the BRADFORD PRICE BOOK, you'll find quick, easy answers to your pricing problems. Be it a question either in plumbing, heating or sheet metal work, you'll find price data showing prevailing material costs . . . list, net and suggested selling prices. Contents: 450 pages divided into 24 sections. You'll find the BRADFORD PRICE BOOK a most valuable item of equipment in maintaining a successful and profitable business.

Subscribers use this valuable book to make sure that they are being allowed the latest market discounts and prices.

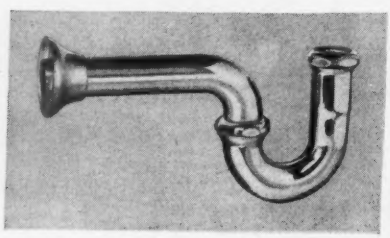
WRITE FOR COMPLETE INFORMATION TODAY

The BRADFORD PRICE BOOK
QUINCY 69, MASSACHUSETTS

"P" and "S" TRAPS

OF OUTSTANDING DURABILITY

ABN



ABN

- Short bend made of single piece tubular brass with *rolled thread.*
- All-over smooth surfaces.
- No necessity for a soldered threaded collar.
- Polished, chrome plated over bright nickel.
- Deep flanges.
- ORDER FROM YOUR JOBBER TODAY!

CHECK the features of ABN traps . . . follow the lead of thousands of Master Plumbers who are specifying and installing ABN rolled thread "P" and "S" traps . . . order ABN traps now for durability that outlasts the buildings in which they are used. For fast, easy installation that cuts time costs install ABN traps.

Other dependable ABN products include sink strainers, a full line of faucets (renewable seats and units), tub fillers, shower valves and heads plus a complete line of traps and wastes.

American Brass Novelty Co.
GRAND HAVEN, MICHIGAN

Notes On Soldering

Book: Illustrated 88-page book, paper bound, 6 by 9 in.

Author: W. R. Lewis, Tin Research Institute, London.

Contents: Book presents a comprehensive study of the soldering process, especially recent findings and technique developments. The fundamental principles underlying the production of wiped joints in lead pipes are covered and alternative types of joints are described and illustrated. Aluminum, stainless steel, cast iron and various difficult-to-solder alloys are capable of being soldered by special methods suggested in the booklet. Issued free.

Publisher: The Battelle Memorial Institute, 505 King Ave., Columbus 1, Ohio.

Smoke Rings the Bell

(Continued from page 140)

Approximately ten seconds is required for the complete activation of the smoke removal system after smoke has begun to enter the accumulators.

The duct system is effectively blended with the interior decoration scheme, and the exhaust intakes are visible only as a long slot, tapered from 1½ to 1¾ in. wide, around the ceiling trim of the wellway on each floor. The optimum air intake velocity is 1200 fpm, regulated by positioning a sliding place to reduce the intake slot width if necessary.

The exhaust system can double as a normal ventilation system by running the exhaust fan at three-fourths speed, 900 rpm. When running at full speed, the 25 hp motor pulls the smoke laden air out at a speed of 14 mph, comparable to a strong breeze.

This system, said to be the first of its kind, is designed to reduce damages and dangers from smoke, but its most important purpose, in the opinion of the store owners, is that it will reduce the likelihood of panic if a fire does occur.

All component parts are standard items, but this is the first application in the present form. Elaborate safety precautions are taken to warn against any breakdown in the control system.

Ethan Allen Dessison, architect, and Dwight D. Kimball, consulting engineer, both of New York City, designed the system. The installation was done by the Southern New England Construction Co., Hartford, Conn., the general contractor.

Since 1856 . . .

The McDonald trademark has assured users of top quality, service, and lasting dependability in brass goods, pumps, and oil equipment. It has to be good to earn the McDonald name.

A. Y. McDONALD MFG. CO.
Dubuque, Iowa

GENUINE BARNES

. . . Your Assurance of Genuine Tool Satisfaction!

Genuine Barnes pipe cutters have long been popular with Master Plumbers. And why not? It has helped them do better pipe cutting because it permits faster, more accurate workmanship. Master Plumbers appreciate the importance of its three thin, tough, drop-forged cutter wheels . . . it's unfailing dependability on every pipe cutting job. Yes! It takes a master pipe cutting tool to master all pipe cutting jobs. Order your Genuine Barnes today.

A leader in the Pipe Cutting Field for over 64 years.

THE BARNES TOOL CO., INC.
NEW HAVEN, CONN.

Each cutter is hand-tested before leaving the factory.

GENUINE BARNES

Protect Your Oil or Steam Lines Against Leaky Joints with KEY GRAPHITE PASTE

Thread and gasket connections on oil lines . . . either hot or cold . . . or high pressure steam lines . . . will not leak when sealed with Key Graphite Paste.

This sealing compound expands when it is heated, forming a perfect seal. Assembled joints will not freeze in service. Key preserves threads and gaskets and, above all, it is economical to use because it goes several times further than ordinary pipe dopes.

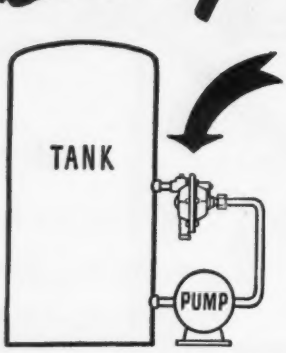
Ask your jobber for Key Graphite Paste or take advantage of our FREE sample offer.

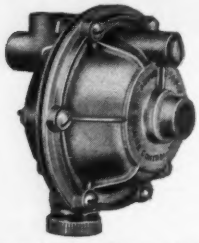
SEND FOR FREE SAMPLE
Try Key Graphite Paste at our expense

KEY COMPANY
2661 McCasland Ave., East St. Louis, Ill.

KEY Company

Brady **AIR VOLUME CONTROL**





Standard equipment on leading makes of ejector turbine, rotary and centrifugal water systems.

1,500,000 controls in service for several years. Many now need replacement or repairs.

REPLACEMENT CONTROLS AND REPAIR KITS AVAILABLE FROM YOUR PUMP SUPPLY HOUSE OR JOBBER

Model No.	Diam. for Identification	Max. Tank Size
AV-25-3A	3" diameter (4-bolt)	42 gal.
AV-30-3A	3" diameter (5-bolt)	42 gal.
AV-42-3A	3 11/16" diameter	70 gal.
AV-80-3A	3 7/8" diameter	120 gal.
AV-120-3A	5 1/2" diameter	220 gal.

WRITE FOR LATEST BULLETIN

F. E. Brady Products, Inc. 18TH AT EBRIGHT MUNCIE, INDIANA

Garbage Disposal Units

(Continued from page 148)

splendidly, but it retained all the ground up food waste and it had to be cleaned two or three times a week, depending upon the amount of food waste deposited. Consequently, the food waste grinding unit was removed.

The committee that is working on this recommends that the food waste grinding unit discharge the food waste directly into a soil waste or stack, rather than into a catch basin or grease interceptor.

Another problem came up which might be very interesting. A food waste grinding unit was installed where a backwater valve was installed in a new building. After six months' time, the house sewer was stopped up. The amount of food waste from three people was sufficient to stop the line. This was caused by flap of the back-water valve restricting the flow of waste water, and causing a settlement of grease sludge in the pipe and gradually building up to a complete stoppage. There was no stoppage of grease on the sewer side of the back-water valve. Sufficient water should always be used with the grinding unit. After the garbage was ground, there was not enough water used afterwards to flush the food waste beyond the back-water valve. The people were instructed to continue to use water several minutes after garbage had been ground. We are going to check the job a little later and see what is what.

The first step is probably most important. That is, what is the effect of the grinding unit on the public sewer system and disposal plant? We have received literature from all over the country. In most cases, the

FITZGIBBONS

For 63 years, the right name in

STEEL BOILER HEAT

A.S.M.E. CODE CONSTRUCTED
HYDROSTATICALLY TESTED
HARTFORD INSURANCE INSPECTED
S.B.I. CODE RATED

Fitzgibbons Boiler Company, Inc. 101 PARK AVE. NEW YORK 17, N. Y.

THE NEW **RUDY** LINE of

FURNACES
and
AIR CONDITIONERS
is complete for
Coal — Gas — Oil

RUDY MANUFACTURING CO., DOWAGIAC, MICHIGAN

DON'T SAY "STRAINER" . . SAY

TIPPIT *Crumb Cup* SINK STRAINER

The last word in kitchen sink strainers. Positive in action . . . yet simple and foolproof. Housewives will thrill over it. A tip lifts the drain to empty . . . a tip sets it back in place again. Nothing like it for utility . . . for quality . . . for instant appeal. Write for details.

THE BLOCH BRASS CO.
12203 EUCLID AVENUE -:- CLEVELAND, OHIO
An outstanding name in brass goods since 1906

ORDER Alt's House Heating Plans **ONLY $1**

This book will give the heating man reliable information for use in designing and installing heating systems for residences, garages and combination store and apartment buildings. All of the smaller type of structures. It includes designs for all of the various boiler and radiator systems, data on accessories and gives full and complete layouts. Small structural heating system installations present many new and different problems—these are solved in this book. 208 pages, 5x7¾, cloth bound. Price postpaid $1 (cash with order).

DOMESTIC ENGINEERING CO.
Book Department
1801 PRAIRIE AVENUE, CHICAGO 16, ILLINOIS

objection is that the sewers are too small. The disposal plants are not designed to take care of the additional loads. One must remember that in the last 15 or 20 years, air conditioning with its tremendous use of water for cooling has done considerable to load up the sewers and will continue to do so as time goes on. Years ago, we did not have paved roads, but with the coming of automobiles, roads were paved. As more food waste units are installed, sewers and disposal plants will have to be built according to need. We, as a committee, know that the food grinding unit has been accepted by the public and we feel it is another step forward in the art of sanitation.

Warm Air Convention

(Continued from page 133)

stronger. 10. Decreased inventories. 11. Abundant credit available. 12. Highest level of orders for new expansion products. 13. Exports will break all records. 14. Some price declines will occur but these declines are desirable ones. 15. Enormous need for public construction.

These points, said Mr. Flack, call for vigorously assailing the market today.

Atlee Wise, president, Wise Furnace Company, Akron, Ohio, and president of the association, delivered the convention's key-note address and introduced speakers on the program.

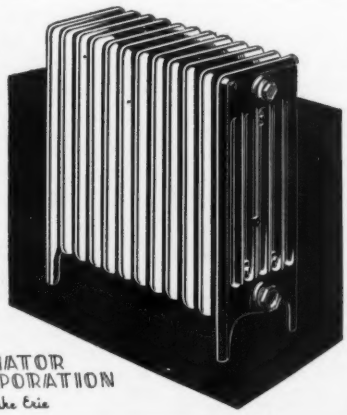
Mr. Wise was reelected president; Clarence Franke, Standard Furnace Co., St. Louis, Mo., 1st vice president; Mr. Redrup, 2nd vice president, and George Boeddener, secretary-treasurer. Mr. Boeddener is also managing director of the association.

DUNKIRK Slender RADIATORS

New... smart... harmonious... complementary to decor,... Dunkirk Slender Radiators conserve space yet provide full capacity radiation. Made of cast iron... the lifetime metal.

Manufacturers of Cast Iron Boilers and Radiators

DUNKIRK RADIATOR CORPORATION
DUNKIRK, N.Y. on Lake Erie



For Accuracy - Convenience
Use **EMPIRE LEVELS**

No. 26 EMPIRE TORPEDO LEVEL Aluminum Alloy with patented hollow reinforced construction. No sharp edges to tear your pockets. Level vial with ½° and 1° pitch, plumb, and 45° vial. Compact size—only 9" x 1¼", weighing only 4 oz. At your jobbers or dealer.

"The Standard of Accuracy"

EMPIRE LEVEL MANUFACTURING CO.
BOX 97, DEPT. 713, MILWAUKEE 13, WISCONSIN

Lest You Forget!

Good Design and Equipment
+ Expert Installation
+ Regular and Thorough Cleaning
= FUEL SAVING
+ LONG SERVICE
+ MAXIMUM COMFORT

USE

The best boiler compound you can get—to save money for you and your customer.

K&K

- ★ Thoroughly cleans any type of boiler, new or old.
- ★ Stops priming and foaming.
- ★ Removes rust, scale, oil.
- ★ Insures Dry Steam.
- ★ Requires no shut-down.
- ★ Is 100% active powdered chemicals.
- ★ Is harmless to metals and gaskets.

TESTING POWDER with every can insures efficient application.

Used over a decade by Railroads, Utilities, Industrial and Marine Engineers. Try KEK yourself and be convinced. Send TODAY for free Boiler Booklet.

KEK is sold through recognized jobbers, WITHOUT PREMIUMS and TIE-INS. You get FULL VALUE.

*Accept no Substitute * Insist on KEK*

KENITE LABORATORY, INC.
83 Murray St., New York 7, N. Y.

THE **INLAND JOIST SUPPORT**

IN PLACE OF A JOIST HEADER

Avoids troublesome header construction where joists must be cut to accommodate soil stacks - floor furnaces - duct work - piping - etc. Does a BETTER job in HALF the time.

Your Mechanics Will Like Them. PRICE $1.60

INLAND MFG. CO. 1120 N. Cicero Ave., Chicago 51, Ill.

Strataflo

NON-FREEZING
WALL HYDRANT

SIMPLE • EASY TO REPLACE VALVE WASHER
Eliminates need for draining pipes. Gives outdoor water service all year 'round.

Order from your Jobber

STRATAFLO PRODUCTS, INC., • FORT WAYNE 1, INDIANA

Classified ADVERTISING

SITUATIONS OPEN

SALESMAN

Now calling on jobbers of plumbing, heating supplies wanted to represent twenty-year-old manufacturer of quality pipe fittings. Many choice territories still available. Write, giving complete information as to territory covered, lines carried, etc. Address Key 554-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

SALESMEN WANTED—MEN NOW calling on plumbers, to sell complete line of faucets and valves by established manufacturer. Address Key 549-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

SALESMEN: EXCELLENT OPPORtunity with 25 years established wholesaler of plumbing and heating supplies, calling on plumbing and heating contractors, car essential, eastern territories open, include qualifications and background. Address Key 523-E "DOMESTIC ENGINEERING," 180 Prairie Avenue, Chicago 16, Ill.

PLUMBING SUPPLY SALESMAN

Long established concern operating out of New York has openings for several salesmen with extensive following among plumbing and heating contractors and hardware store clientele. Complete line of brass goods, fittings, heating materials, seats, etc. Own car essential. Territory open east of the Mississippi River. Outline areas following consists of, and other details in first letter. Liberal salary and bonus, $7,500 earning bracket. Address Key 560-E, "DOMESTIC ENGINEERING", 1801 Prairie Avenue, Chicago 16, Ill.

SALESMAN WITH KNOWLEDGE OF heating to sell complete line including latest type baseboard radiation, Southeastern states and Western Pennsylvania open. Address Key 566-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

SALESMAN. TO COVER TERRITORY for jobber. Location Michigan. Reply in detail stating age, experience, and references. Address Key 569-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

SITUATIONS WANTED

SEEKING A CONNECTION TO SELL to either the plumbing and heating contractors, hardware stores or to the plumbing supply jobbers in the Philadelphia, South Jersey and Wilmington, Delaware area. Please write to W. Green, 924 N. 5th Street, Philadelphia 23, Pennsylvania.

REPRESENTATIVES WANTED

MANUFACTURER OF HIGHEST quality automatic steam radiator venting valve has several choice territories available for well-established agent. Liberal commission. Furnish information regarding territory, trade coverage and lines carried. MARKS BROTHERS COMPANY, 151 Hallet Street, Boston, Mass.

REPRESENTATIVES WANTED

A SHORT LINE MANUFACTURER OF brass and steel pipe fittings (bushing, plugs, caps, couplings and reducing couplings), also compression and flared adapters for tubing and several specialties, desires live-wire representatives selling to the plumbing jobbers. All territories open except metropolitan New York, southern New Jersey, Pennsylvania, Delaware, Maryland and Washington, D. C. Write fully concerning territories and lines carried. Address Key 563-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

MANUFACTURERS' AGENTS. LARGE manufacturer with national distribution of well-known brand name automatic gas and electric water heaters, range boilers and tanks has choice openings for sales representatives in Middle West, South and Southwest. Only those men who contact the wholesale plumber and electrical jobbers will be considered. Give full particulars including companies now represented. Address Key 559-E. "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

REPRESENTATIVES! MANUFACTURERS' AGENTS! JOBBERS!

Send for details and proposition of the sensational modern "Blue Ring" Conversion Gas Burner (AGA—certified) Sales representation and some exclusive territories still available. Old established manufacturers of forty years. Be ready for fast developing opportunity. A high quality line with exceptional appeal. Write NIAGARA MOTORS CORP., Heating Division, Dunkirk, New York.

WANTED: MANUFACTURING AGENT to represent leading toilet seat manufacturer in Utah, Idaho and Montana, or any part thereof. Must have contacts through plumbing jobbers, architects, engineers, etc. Strictly commission basis. Excellent opportunity. Address Key 553-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

REPRESENTATIVE WANTED

Aggressive manufacturers' agent with knowledge of heating and power boiler sales to handle full line residential, commercial and power boilers. Excellent territories available. Write all details. Address Key 492-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

MANUFACTURERS' REPRESENTAtives wanted by manufacturer of Nurail Slip-On Fittings, revolutionary new development reducing labor 80%; other plumbing specialty items nationally advertised. Commissions on all sales in territory. Write details, territory covered, type of calls made, lines personally handled, etc. The Hollaender Manufacturing Company, 3841 Spring Grove Avenue, Cincinnati 23, Ohio.

REPRESENTATIVES WANTED

SALES REPRESENTATIVES

Wanted by manufacturer of excellent competitive line of tubular brass plumbing products. A few exclusive territories open in East, Mid-West, and South. State territory covered, other lines handled, and complete details first reply. Address Key 572-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

OLD ESTABLISHED CONCERN HAS A few territories open for wide-awake, aggressive representatives that are well established with plumbing jobbers to sell a complete competitive line of plumbers' brass goods. HARVEY MACHINE CO., INC., 19200 S. Western Ave., Torrance, Cal.

TEXAS AREA

Houston's most progressive jobbing distributor establishing new lines for representation. Write 6011 Kirby Drive, Houston 5, Texas.

TO SELL ONE OF AMERICA'S FINEST wall furnaces (all gases) to wholesalers on commission. Forward information on territory, lines carried, how long established. Address Key 571-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago, 16, Ill.

SALES REPRESENTATIVES WANTED

Territories available west of Mississippi with following among plumbing and hardware jobbers selling top quality Swedish steel compass saw blades, aluminum handles. State territory covered in first letter. Address Key 574-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

LINES WANTED

CALIFORNIA AREA

Factory representative with own centrally located warehouse and complete sales organization now has room for one more top quality line of products for sale through wholesalers. Address Key 519-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

High grade plumbing manufacturers can be served to best advantage only by an established representative. We offer such effective representation throughout the Southern states.

J. LEONARD COLLIER

P. O. Drawer 631 Alexandria, La.

NORMAN LEWIS & COMPANY

Manufacturers' Representative

88 Broad Street, Boston 10, Mass.

Selling the New England wholesaler for over 22 years

Classified ADVERTISING

LINES WANTED

MANUFACTURERS ONLY

Your line effectively sold and established by personal contact to the plumbing contractor either direct or orders taken through supply house. This method of selling assures your line the opportunity you desire. Minnesota area. Address Key 555-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

MISSOURI, IOWA, NEBRASKA, KANsas, and Oklahoma. Many sales managers think its is dangerous to longer delay the development of markets. Staple, quality items wanted selling to hardware, plumbing and electrical jobbers. THE E. E. FISHER COMPANY, 2422 Rivera, Wichita 9, Kansas.

M. A. SUSSMAN COMPANY

315 Loeb Arcade

MINNEAPOLIS 2, MINNESOTA

LINES WANTED

Here's an opportunity for the heating equipment manufacturer to gain the services of a specialist in the sales and distribution of automatic heating equipment. Proven record showing results of 800% increase in 1948. Let me help you secure your share of 1949 business. Address Key 557-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16; Ill.

MANUFACTURERS REPRESENTAtive established in the state of Florida calling on all plumbing and heating jobbers, desires a few more lines to promote. Located St. Petersburg, Florida. Address Key 558-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

MANUFACTURERS ATTENTION

Progressive sales organization wishes to represent manufacturer for complete sales distribution on commission basis. Nation-wide coverage by our twenty-two salesmen now selling the wholesale plumbing, heating and hardware jobbers. Address Key 564-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

WE ARE INTERESTED IN TAKING on a line of air conditioning and refrigeration equipment which is not already represented in Miami Beach, Fla. area. Address Key 508-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

BOSTON MANUFACTURERS REPRESENTATIVE

Will give constant representation in New England area for one or two lines of reputable manufacturer. Formerly represented nationally-known manufacturer in this territory for seventeen years. Would prefer wholesale distribution. Address Key 567-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

CAN GIVE CONCENTRATED SELLing effort to one or two reputable plumbing or heating lines. 15 years experience with wide following in Chicago and Milwaukee area. Travel two salesmen. Address Key 528-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

LINES WANTED

ATTENTION MANUFACTURERS

Are you getting the business in New England you are entitled to? Boston manufacturers' agent, selling plumbing and heating supply jobbers, with experience and know-how, can give effective personal representation to additional high quality line. What have you to offer? Address Key 565-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

PETER DLOOGATCH

2310 Arthur Avenue

Chicago 45, Ill.

ATTENTION MANUFACTURERS

Three man sales organization calling on wholesalers in Ohio, Indiana and Kentucky desires additional lines. Plumbing and Heating Sales Company, 214 Hippodrome Building, Cleveland 14, Ohio.

CAPABLE MANUFACTURERS' REPresentative, over twenty-five years' experience, can give you distribution through wholesale plumbing and heating supply jobbers within 100 miles radius of New York metropolitan area, New Jersey and Connecticut. Desires additional line. Plumbing, heating, gas, or water supplies. Address Key 314-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Illinois.

M. M. MATHES & SON MANUFACTURERS' AGENTS

1836 Euclid Avenue, Cleveland 15, Ohio. Established 24 years. We need additional non-conflicting lines to offer our established plumbing jobber trade throughout the entire state of Ohio. We will guarantee active coverage.

ST. LOUIS, CENTRAL SOUTHERN Illinois, Missouri and Kansas thoroughly covered by me with the jobbing trade. Lines desired. Address Key 556-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

LINES WANTED

Financially responsible, well established manufacturers' representative, 18 years experience selling plumbing supply jobbers, has facilities for handling one or two additional lines of merit in Texas, Louisiana, Mississippi and Mobile, Alabama. Complete jobber and factory reference furnished upon request. Address Key 418-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Illinois.

Pacific Northwest Territory

WILLIAM B. LAMBERT

1718 East 107th Street
Seattle 55, Washington

Manufacturers' Representative

LINES WANTED

ESTABLISHED REPRESENTATIVE who has covered upstate New York for the past ten years would like to assume representation for two lines of quality in the plumbing and heating field. Address Key 561-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

I POSSESS "KNOW-HOW" AND "know-who", calling on plumbing-heating wholesalers only in metropolitan New York-New Jersey area. What can you offer? Commission basis. Address Key 573-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

FOR SALE

PLUMBING AND HEATING SUPPLY business in western suburb adjoining Chicago, wholesale and retail, with franchise for Kelvinators, Fairbanks-Morse stokers, Martin outboard motors, Youngstown kitchens, and many others. Doing a yearly business of $120,000 and net profit of $22,000. Price $45,000 cash with $17,000 inventory. Address Key 532-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

PLUMBING AND HEATING BUSINESS in Asheville, North Carolina. Very successful business. Can be sold for cash or terms with a minimum of $30,000. Clean inventory and may be purchased with or without accounts receivable. Thirty members and twelve operating trucks. Write or wire J. T. Chiott, Agent, Box 2123, Asheville, North Carolina.

PLUMBING AND HEATING BUSINESS, South Side, Chicago. Modern store and four room flat in rear with two large bedrooms and closets. Brick building, 12" walls, one-car brick garage. Store, 20x52 ft., full windows across store, tile floor, ceiling fans and channel fluorescent lights and spots. Outside color neon sign, 4x5 ft. Full 8 ft. cement basement under store and flat with fluorescent lighting. Hanging sewers, steam stoker heat. 25 ft. vacant lot. New panel Dodge truck—shop on wheels. Power and hand tools, office fixtures, fine list of steady customers and overcounter plumbing items. $6,000 inventory. $32,000 for all. Half cash and terms. Owner retiring. Address Key 562-E, "DOMESTIC ENGINEERING," 1801 Prairie Avenue, Chicago 16, Ill.

BOOKS

"PRACTICAL DUCT WORK"

Complete and practical presentation of duct design and fabrication written by consulting engineer. Points the way to correct duct work practice; presents many useful shortcuts. Covers every phase, including split systems, forced air heating in remodeling, tools used in duct work, ventilating, etc. All drawings, job plans, diagrams are clear, concise—particularly easy to follow. 122 pages. Price postpaid $1. Order from Book Department, "DOMESTIC ENGINEERING," 1801 Prairie Ave., Chicago 16, Illinois.

If you want STRENGTH get—

BERMICO®
SEWER PIPE

YOU SAVE MONEY. BERMICO Sewer Pipe has strong walls, resists breakage. It's light, handles easy on the truck and on the job. Economical 8-foot lengths.

YOU SAVE TIME. BERMICO is fast-laying. One-two-three quick hammer blows and the joint is made—for keeps. No joining compound needed. You can back-fill right away, too.

YOU SAVE TROUBLE. With BERMICO there'll be no complaints later. It's corrosion-resistant, tough. Resists sudden temperature changes and soil settlements. Joints are root-proof, permanent.

FOR HOUSE-TO-SEWER OR SEPTIC TANK Specify BERMICO. Made in a full range of sizes, connections, bends, reducers, adaptors, etc. Nationally advertised. Use BERMICO Perforated pipe for drainage purposes. For further information write Brown Company, Dept. A-41, 500 Fifth Avenue, New York, N. Y.

EASY TO INSTALL

8-foot lengths reduce number of joints to be made.

EASY TO JOIN

Root-proof, machine tapered joints require no packing.

EASY TO HANDLE

⅔rds lighter than other types of sewer pipe.

BERMICO meets with an ample margin all requirements of Commercial Standards CS 116-44 as issued by National Bureau of Standards, U. S. Deparment of Commerce.

BERMICO—A PRODUCT OF BROWN COMPANY

Grease Interceptors

(Continued from page 152)

and we have found that it is almost solely through trial that the correct number of days or weeks between cleanings can be determined.

In cases where a small interceptor is used and where the user is a so-called "grease cooker," the interceptor will fill up quickly and must be cleaned quite frequently. In cases where larger units are used, the interval between cleanings can be stretched out due to the fact that the larger interceptor, of course, has a greater grease holding capacity.

Must Be Serviced

There has been talk from time to time of how far one can go in forcing the public to properly maintain grease interceptors that are compulsory by code. It is unquestionable that in order for them to operate in an efficient manner, they must be serviced and the grease and sediment removed periodically.

Owner Liable

In the city of Detroit, I believe, the code is so written that it is almost compulsory for the interceptors to be cleaned. If they are not cleaned and if sewer stoppages occur, the owner of the property is liable. We understand that they have had a fair measure of success with this problem. Perhaps similar codes are the answer.

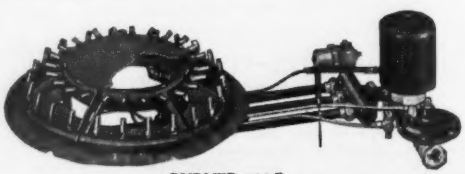
Summing up all of the points mentioned above, I believe that all plumbing codes should cover the problem of grease interceptors very thoroughly.

BARBER BURNERS

The Leading Conversion Burners

Since 1918, Barber Automatic Gas Conversion Burners have been outstanding. Barber features *perfected* design, free from experimental gadgets and frills, which means trouble-free operation, less servicing, more satisfied customers. Famous Barber air-activated Jets give complete combustion, with intense flame applied directly to combustion chamber. That's why Barber most closely approximates the efficiency of a modern gas-fired furnace itself. These dependable units are made in a wide variety of shapes and sizes to fit *properly* the requirements of all types of round or oblong furnaces and boilers. Any dealer who installs Barber Burners knows from experience that he handles a time-tested and exceptionally reliable product.

Listed in A.G.A. Directory of Approved Appliances. Ask for catalog and prices on conversion burners, appliance burners, and pressure regulators.



BURNER 324-B

THE BARBER GAS BURNER CO.

3704 Superior Avenue Cleveland 14, Ohio

BARBER *Automatic* JET GAS BURNERS

for Furnaces, Boilers and Appliances

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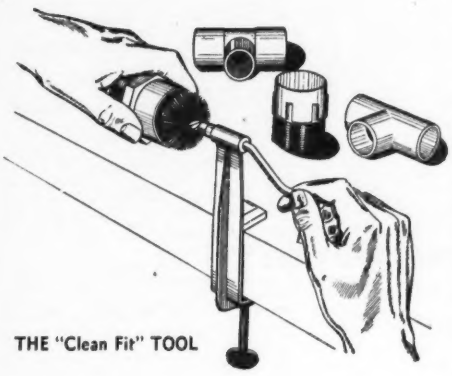
THE NEWEST FASTEST METHOD OF CLEANING SOLDER FITTINGS



THE "Clean Fit" TOOL

4 TIMES FASTER
EASIER
BETTER

Compact lightweight tool.
Quickly mounted anywhere.
Ready for instant use.
Cleans all solder fittings from 1/8" to 2".

Order from your jobber. Ask him about our other cleaning brushes — the "CLEAN FIT" Tube Cleaner and the popular steel wire Wood Handle Fitting Brushes.

THE MILL-ROSE COMPANY

1985 EAST 59TH STREET Dept. D CLEVELAND 3, OHIO

TRY IT!

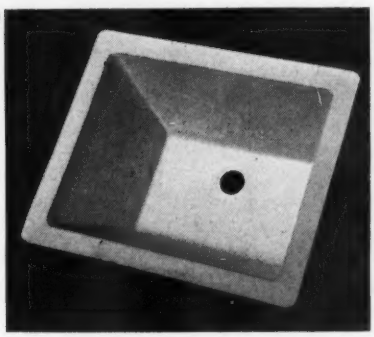
Get acquainted with "Clean Fit". Take advantage of this

SPECIAL INTRODUCTORY OFFER

$1.98

The handy "Clean Fit" Kit contains everything needed to clean fittings on the job, including the "Clean Fit" Tool, Aluminum Handy Handle and 1/2" and 3/4" brushes. Brushes for other size fittings available from your jobber.

New!



Enamel Finish

CAL CAST LAUNDRY TRAY

Entirely different is the amazing new white enamel finish which is boosting Cal Cast laundry tray sales everywhere! Its ability to resist acids and caustic sodas, its rough flexibility and permanent spotless beauty are important features your customers want and demand!

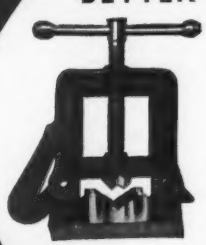
Comes in dazzling white enamel finish (shown) or gleaming satin finish with polished rim. Tray is cast in one piece of corrosion resistant aluminum alloy; measures 24" x 20" x 12".

If your local plumbing jobber cannot supply you write direct. Other products styled and "built to last" by Cal Cast include floor sinks, standard sinks, standard and double laundry trays. Specify enamel or satin finish.

Cal Cast Products

1575 COMPTON AVE. LOS ANGELES 21, CALIF.

BETTER PIPE TOOLS



"ARMSTRONG BROS." Pipe Vises are built for lifetime service with *unbreakable* drop forged steel hooks. Other design improvements include: oval handle ends (will not pinch hands), replaceable tool steel jaws with milled teeth, and on sizes 70 and 71, a solid 1-piece jaw that prevents kinking of small pipe. There are always extra quality features in an "ARMSTRONG BROS." Pipe Tool.

Write for New S-48 catalog just released.

ARMSTRONG BROS. TOOL CO.

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Chicago 30, U.S.A.
New York and San Francisco

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WHY? Thousands of One-Pipe Steam Systems are wasting fuel and heating the houses inadequately, because air is not vented quickly and properly

Automatically fired one-pipe steam plants create a venting problem. To function properly, all the air must be driven out of the mains and radiators with a *rush*—even before pressure shows on the gauge.

You can help your customers and make a good profit for yourself by correcting the sick jobs in your territory. It is easy to do by installing No. 861 Hurivents on the mains and No. 300 Multiports on all the radiators.

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1. **Saves fuel.** Steam reaches all radiators quickly. Thus, shorter firing cycles and less fuel.
2. **Balances the system.** All radiators heat uniformly and at the same time.
3. **Provides quicker heating of all radiators.**
4. **Vents radiators quietly.** Vented air effectively muffled by the No. 300.

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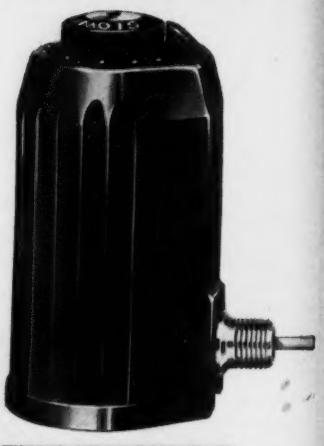
for Steam Mains

Half-inch port vents steam mains quickly. Will vent 130 feet of 2" main in 30 seconds at only 4 ounces pressure. Shank threaded ¾" male and ½" female N.P.T.



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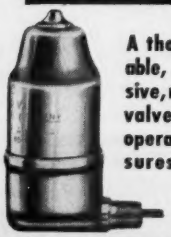
No. 500 Airid Air Valve



A thoroughly reliable, yet inexpensive, non-adjustable valve for systems operating at pressures over 3 lbs.

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Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

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